# Biography of Raymond Harold Wallace
# 1899-1965
# A perspective of the times

Mary Wallace Bushnell

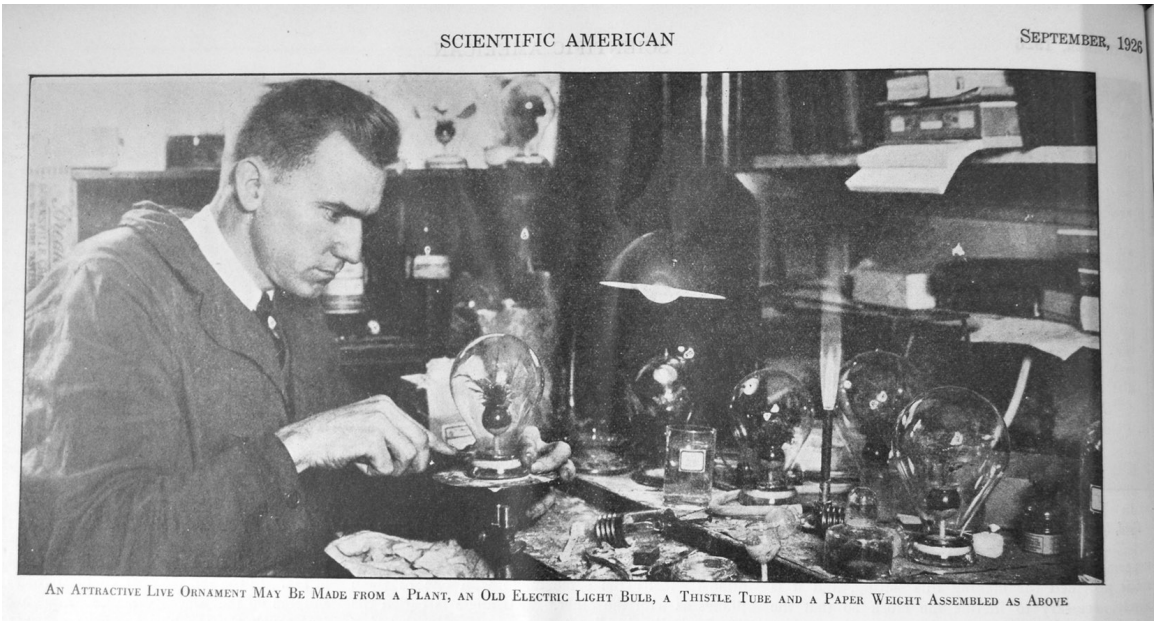
2015

Author's note:

I had an epiphany several weeks after I recovered from four and a half months of loss of memory and dementia in the spring of 2014 from Saddle embolus. The epiphany came in the middle of the night. It is to write about my Father. I knew instantly that that is why I survived. I have researched various archives for information on Raymond Harold Wallace. He died in 1965, and I know little about him. I left for school away from home at age 18, and there was not much interaction from then on. He was a difficult person to know. I heard many stories from him but still do not know where he lived when he graduated as Valedictorian from his high school class. I wish I had known him better. This has been a months long endeavor on my part and am happy to be alive to do it.

Mary Wallace Bushnell

March 6, 2015




Plants Grow in Air-tight Containers
The balance Processes of Green Plants Enable Them to Live Almost Indefinitely in Hermetically Sealed System
By Raymond H. Wallace
Fellow in Botany, Columbia University

Raymond Harold Wallace was an extraordinary man who reached for the stars to overcome huge obstacles in his humble life. He recovered from poliomyelitis when he was 18 months old which resulted in one lower extremity four inches shorter than the other. He was the youngest of 13 children in a very poor family. His Father deserted the family leaving his Mother with the five youngest children to raise in poverty. Raymond Harold Wallace was born in 1899 in Cowgill, Missouri to Anna Catherine Mohn and George Washington Wallace. They were married in the 1880's. His Father was born in 1861 in Ray County, Missouri and died in 1944. Anna Catherine, was born in 1867. She died in 1933 and was buried in Livermore, Iowa. A copy of her obituary notice is included. The Father of this family sired 13 children but deserted the family when Raymond very young. He was the youngest of thirteen children. The fact that Raymond developed poliomyelitis at age 18 months may have been a contributing factor. Any major illness or death in a child is a frequent cause of a couple separating. Anna was left in poverty to raise the five younger children. There was no such thing as public assistance from the Government. Religious groups did assist the poor. In 1915 she moved her family to Livermore, Iowa. Raymond would have been 16 and of high school age. I recall him stating that he was Valedictorian of his high school graduating class, but I am unable to find any record of the name of his high school or his graduation. Anna had been a member of the Livermore Methodist church for over 30 years.

A professional portrait taken of the Wallace family when Raymond was a baby, shows there was money at that time with the family well dressed. There was no welfare at that time. His father, George Washington Wallace, had another family after leaving Anna. Gene Van Alstyne. Raymond's Nephew, son of my Aunt Cora Van Alstyne, and therefore my first cousin, related this fact to me. Anna was left with the younger of the 13 children……Avery, Colonel, Cora, Mary and Raymond. Four children of the 13 had died in early childhood. Raymond told me that one of his sibling, Everett, had died from an infected umbilicus. However in reading the obituary of Anna Catherine Mohn it is apparent he died of something other than that, since he was 21 at the time of death. Medical knowledge has grown by leaps and bounds since that time.

Raymond Harold Wallace had a very inquisitive mind. For example, he wondered if the top surface of a leaf was different from that of the bottom surface and invented an instrument called a Potentiometer to accurately measure the temperatures. Various applications of Potentiometers are still in use today. He was a scientist. In 1926 the first scientific article he authored, was published in the, "Scientific American," while he was a Fellow in Botany at Columbia University

Dr. Raymond Harold Wallace was a Scientist. What is a scientist?
*A Scientist is a person who asks questions and tries different ways to answer them." Barbara Lenhn, a children's book author.*

*Fred Decker of Demand Media writes: Curiosity is a fundamental characteristic of a good scientist. The scientific mindset is one that harnesses and directs the power of the human brain, turning it to the investigation of the observable world.*

*Encyclopedia Britannia: A scientist studies any system of knowledge that is concerned with the physical world and its phenomena and that entails unbiased observations and systematic experimentation*

*Wikepidia: Science (from Latin scientia, meaning "knowledge"[1]) is a* systematic enterprise that builds and organizes knowledge in the form

At the age of 18 months when Raymond contracted Poliomyelitis his home would have had no running water or electricity making life a pioneer sort of existence for the family. Anna sold vegetables from her garden. She took in laundry for other people which was a huge, backbreaking task. There was no running water in her house. Water would be drawn by hand from a well. The water was heated on a stove. It would be placed in a portable washtub and the laundry scrubbed by hand with the use of a washboard. Then it had to be dried on a clothesline. If there was anything that needed ironing she had no electricity to use an iron, but could have had an old fashioned iron that would be heated on the stove. I hope at some time in

her life she had rudiments of more modern amenities such as water and electricity. Anna led a very difficult life.

Raymond's right leg was damaged by the poliovirus and caused his gait a to have a pronounced limp. Somehow Anna despite her poverty, managed to buy a pony for him to ride to the one room school. The pony must have grazed all day until Raymond rode him home. It was a difficult life for the family and Raymond. The medical community fitted Raymond with a cumbersome leg brace with an attached, shoe with a four-inch platform sole. It was very difficult for him to walk very far. There was little help for this new disease. Raymond spoke of being fitted with a brace by medically trained personal. That may have been in Kansas City 56 miles away from Cowgill, where a female doctor set up a practice in 1897. It became the Children's Mercy Hospital 1904. Female doctors were not accepted as medical doctors at that time. We will never know for certain if this group had anything at all to do with Raymond's appliance. Fifty-six miles was a long distance to travel in the early 1900's. In 1947, convalescent polio children under the auspices of the NFIP, later known as the March of Dimes, and its city and county chapters were brought to St. Anthony's. Medical Center in St. Louis, Missouri. St. Anthony's became one of the country's largest polio rehabilitation centers, treating more than 100 polio patients per day. As an adult, Raymond complained about the bulky brace that was fashioned for him. Later in life he made his own brace which he wore with a high top dressy shoe from the Tom Mcane shoe company, which had been in operation since 1922.

Raymond's Mother must have been greatly distressed to have her toddler son develop this new disease of Poliomyelitis, with its resultant deformity. At 18 months he would have been a busy toddler running about playing, When his leg became shriveled and weak and did not grow at the rate of the other leg, it would soon have been apparent that Raymond had a difficult time walking. Since it was a new disease medical experts would have been very interested and puzzled over it. The Government would have stepped in to help the families of afflicted children. The medical experts of the time would be trying to lean about this new disease. Amazingly no other children in the family became sick with polio.

*Poliomyelitis was a RARE disease in the 1800's, but by the 1900's, polio epidemics ravaged the young, leaving many with deformed limbs. It's worst form was Bulbar polio, that affected the lungs and caused many deaths. In 1400 BC an Egyptian carving shows a subject with a deformed leg such as Raymond had. By the current era of 2000, polio had been eliminated in the United States due to polio vaccines developed by Salk and Sabin, independently of one another. Dr. Salk's vaccine is an inactivated Polio vaccine used in the USA since 2000. Sabin's vaccine is an oral polio vaccine and is commonly used out side of the USA. Our summers in Connecticut were greatly affected by polio epidemics of the 1940's and 50's. We did not go swimming and stayed on high alert for sickness. One summer several children who had been in the University of Connecticut swimming pool, came down with a mild form of the disease, several days after a child who had been in the pool who was diagnosed with polio. The*

*under treated Chlorinated pool water did not protect them. Polio is still a problem in Mid Eastern countries.*

*Polio-Time lines- History of Vaccines*
*www.historyofvaccines.org/content/timelines/**pol***
Vaccines
www.vaccines.gov/disease/polio

I never heard Raymond complain about his, "Bum," leg as he called it. He accepted the way it was. His Mother's attitude would have had a great deal to do with this. She herself was a strong, intelligent woman who coped well with this new problem in her life. I remember when the University of Connecticut took away Raymond's special parking spot directly adjacent to Beach Building at the University, he rightly complained about that. He had to walk a considerable distance to his newly assigned parking lot. Walking was a chore, but he never used a cane or crutches. No special spot was provided. Handicap laws to assist the handicapped, did not come into existence, until much later and after his retirement in 1958. Raymond did not like drivers slowing down for him in crosswalks and would express disgust. Raymond did have a bad temper, and it was better to avoid it at all cost. The children always were admonished not to leave toys on the floor lest he trip and fall on them. He managed in our home, to walk up and down the stairs, but with difficulty. At the University in Beach Building, he used the only private elevator, for which he had been provided with a key. His office and laboratory were on the 3rd floor. He continued to do manual labor jobs around his home. He painted our large two story home and worked in his large Victory garden in WWII.

Of interest, Cowgill in 2010 census listed 188 souls, which would have been considerably less in 1900. None of Raymond's other sibling in the home at that time contracted poliomyelitis. This is a huge credit to their Mother, who lived in a pioneer life with no running water or electricity.

# EDUCATION

Raymond was an unusually bright child. With the handicap of a partially paralyzed leg, he could not participate easily in the usual childhood games. School must have been like a dream to him with all the books to read supplied by his teacher. His elementary school was a one-room school house in Cowgill, Missouri. During his high school years he took the opportunity to read and assimilate every book available. He must have loved school but for needing to don the heavy leg brace every morning which enabled enable him to get there. By 1915, the Wallace family had moved to Livermore, Iowa. He must have had access to a library though there is

no information of a library in the early days of Livermore, Iowa. He knew early on that he needed to use his brain to succeed. An older Brother had left the nest at age 12 for life on his own.

His Mother's ability to provide him with a pony is remarkable, with the poverty level they existed in. Riding his pony to school would have been a pleasure since everyone else had to walk. He likely missed many days due to the weather. He excelled and graduated first in his small class. In my entire life, I never heard him talk of his pony as his friend nor did he mention a name for his pony. Another boy whom he called, "Moon Face," because of a disfigurement of his face, became his friend. They both were teased for their deformities which is the nature of children in any era. Today it is called bullying.

Raymond probably graduated from a high school in Livermore, Iowa, but I have been unable to find a record for this. I have researched in many places. Including the Education Department in Livermore, Iowa. He spoke of being Valedictorian. After graduation, he visited a local banker and arranged funding for his college education, he told us.. He must have lived on campus since Livermore and Iowa State University are about 90 miles apart. Family members including myself, recall Raymond speaking of Larned, Kansas, but there is no record of why he was there. The Santa Fe Trail passed through Lernad and the Santa Fe Tail Railroad tracks later ran parallel to the Trail. He had told us of the very long distance one could see the headlight of a train approaching and that the train would arrive a long time later. He realized because of his infirmity, that he could not continue in the tradition of his family which was to be a laborer. Raymond remained close to his Mother Anna Catherine Mohn. When college was not in session, he painted houses for funds to assist her financially. He climbed extension ladders to do this even with his shriveled leg.

In the year book roster of Iowa State University in 1921, Raymond H Wallace is listed as a student from Livermore:
*Wallace*, *Raymond Harold*, A.2 Livermore *Wallace*,1921 roster *State University of Iowa.*

He majored in Botany and Minored in Physics. Raymond is again listed in the 1922 Year Book at Iowa State University. After four years at Iowa State, he started in a Master 's Degree Program at the University of Minnesota. There he met Nellie Alice Thompson of St. Paul who held a Master's degree in Botany from the University of Minnesota and taught at the University. She had graduated Phi Beta Kappa in Botany and Chemistry and was Salutatorian of her high school class. Soon they became engaged. Raymond left for a Fellowship at Columbia University in New York City and never completed the Masters in Minnesota. It was a long four years before they married. On one summer trip together, they took a canoe trip on Lake Itaska in Northern Minnesota. Nellie told me she did all the rowing. Nellie continued to teach

at the University of Minnesota until their marriage. My Mother always emphasized that they had a four year courtship. They kept in contact by letters which Nellies held on to for years. His trips to visit his family and Nellie would have been by train.

National research council fellowships 1925, Columbia University.
Report of National Research Council page 85
Fellowship 1927 Columbia University awarded Raymond H Wallace
National Research Fellow Columbia University 1927-29

Raymond read avidly and had a photographic memory. I was first aware of his photographic memory when as an adult in the 1960's on a visit with my husband and two young children, we visited my parents in Jerome, Arizona. We took a driving trip with Jim at the wheel, to the Grand Canyon and Raymond lectured to us for one and a half hours on the history of the geological development of the Grand Canon. It was amazing.

**Sigma Xi**

Raymond Harold was a member of the Honorary Scientific Society, his membership pin is in my safety deposit box.
*https://www.**sigma**xi.org/*
*Sigma* Xi, The *Scientific* Research *Society* Storrs, Connecticut
The couple married on June I, 1927 in the garden of her parent's home 1680 Englewood Avenue, (previously named Capital Avenue), in St. Paul, Minnesota. Nellie wore a short orange color flapper style georgette dress. The Wallace children marveled over it where she kept it for years in a special storage cupboard. The couple went to see his Mother soon afterwards in Iowa. Next they moved to NYC where they rented an apartment near Columbia University. Baby Dorothy was born a year later. The family stayed in New York where Raymond was on Fellowship until 1929.

**PhD thesis**
**Raymond Harold Wallace**
***Bulletin of the Torrey Botanical Club***
Vol. 54, No. 6 (Jun., 1927), pp. 499-542


The Production of Intumescences in Transparent apple by Ethylene Gas as Affected by External and Internal Conditions

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The Production of Intumescences in Transparent Apple by Ethylene Gas as Affected by External and Internal Conditions

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TIME LINE for Raymond Harold Wallace:

1899 born Cowgill, Missouri
1919 High school graduation Livermore, Iowa
Valedictorian
1921, 1922 Listed as enrollee at Iowa State University
1923 University of Minnesota
1925 National Research Council, Columbia University

At Columbia University Raymond Harold Wallace is listed as having a fellowship in Botany 1927. *( In academia, a fellow is a member of a group of learned people who work together as peers in the pursuit of mutual knowledge or practice.)* In 1930 three years after receiving his Doctoral Degree in Botany from Columbia University, Raymond moved to Storrs, Connecticut where he was hired as an Associate Professor of Botany at the University of Connecticut. His wife and two year old daughter, Dorothy accompanied him. He had worked under a Fellowship

from 1927 to 1929 at Columbia University.

# COLONIAL HOUSE CIRC 1700 RESTORATION

MANSFIELD FOUR CORNER-MANSFIELD

Eventually he and his wife Nellie, bought a circa 1700 colonial house in a dilapidated state on Rte. 195 at Four Corners, Storrs, Connecticut. He told me the ridge pole was straight which meant the structure was in good enough condition to warrant its restoration. When no Bank would loan him money for the project, he visited a wealthy man in Mansfield Center named Cheney and received a loan. Raymond researched the Mansfield Town records and found that the house had been built in the very early 1700's. Thus began a labor of love for the young couple. The house had no running water. A single light bulb hung from a wire from the ceiling in this two story house. It had no central heat and no basement. It had been a farm house with acres of farm land cleared of forest in its early days, but now largely returned to forest The purchased property consisted of nearly two acres. A barn of the same era was a few steps away. My late friend Dick Baldwin, a grad student after WWII, who rented the apartment in the converted colonial barn on the Wallace property, told of visiting farms while working on his Masters degree at the University of Connecticut, and heard stories of a terrible blizzard in 1888, when the farmers had to dig tunnels to reach their live stock in the barns.

Before the purchase of the Colonial house, Raymond and Nellie rented a house near the University campus, kitty corner to the elementary school. Their travel was by *"shanks' mare*" from their Storrs campus home to the colonial house at Four Corners, until they bought a Model T Ford which was followed in 1938 by a Chevrolet Sedan.

Raymond Wallace researched the town of Mansfield records and verified that the Wallace house was built in the early 1700's. The family name who built the house was Southworth. Raymond speculated that the graves of the Southworth family, may have been moved when graves were relocated from the current Storrs Congregational church was built in 1746. Ancient graves still remain in the church yard of the church. Rudy Favotitt authored a book, "Mansfield Four Corners," published in 2003. In it he claims that the Wallace house was built around 1818. His information is incomplete. He mentioned how much it looked like the E.O. Smith house. On the exterior they both look similar. However, I have been inside the E.O. Smith house and was surprised at its very high ceilings compared to the Wallace house. I could stand on my tiptoes and touch the ceiling in the Wallace house. A relative of the previous owner of the Wallace house, still farmed the property. After 1952 while I was studying nursing at the Bellevue Medical Center in New York City, my brother Charles, found an silver pocket watch buried in the dirt in the garden. He coincidentally was working part time while a student at the University at Phil Warzocha's radio repair shop on the campus. His co worker was the grandson of

gentleman who lost his pocket watch in that garden. It sadly was greatly damaged. Charles returned it to the rightful family.

Directly across the street from the house at Mansfield Four Corners, lived Selah Palmer, a Master carpenter. The 1928 Great Depression had started, and Jobs were scarce. My Mother told me years later that Mr. Palmer's restoration work for my Father, kept the Palmer family gong through the Depression. Hard rock maple boards in the attic was moved to the ground floor to be used as flooring where it resembled the patina of fine furniture. The boards were extra wide with some being eighteen inches across. They were beautiful. The finish was linseed oil. Years later, in the 1950's, one afternoon on arriving home from High School, the children found their Mother Nellie, on her hands and knees removing, with great difficulty, a coating of linseed oil she had applied to the flooring. The linseed oil had become hardened and very difficult to remove. Two daughters, Cora and Mary assisted until the job was completed. Again the floor looked like fine furniture. Raymond utilized the most modern innovations in the house and barn, which had been converted to an apartment over a two car garage. Electricity and water were the first things to be accomplished. He and his family moved into the uncompleted house. It had an automatic oil burner while most houses used coal for heat. The garage doors were over head doors rather than swinging-to-open doors. With his infirmity, these things made life easier for Raymond. A coal burning furnace was a huge task in the winter for those who used coal.

A basement was excavated under the house. A large recreation room with a fireplace was formed there. A real Millstone was embedded in the concrete floor in front of the fireplace. College students before my birth, rented the space. Windows to bring in light were in widow-wells. The interior walls were the exterior stone wall foundation. One door led to stairs and which led to an entrance via a hatchway door on the ground level. Other stone/cement stairs led through the green house to the main floor of the house. In the basement there was also a furnace room and a tool shop. In another area Raymond had a photographic dark room with running water, which he used for his photographical endeavors. The annex to the photographic dark room became a place to store canned goods, with shelving from floor to ceiling during WWII. Another area was made into a cool temperature storage room where Apples, Onions, Winter Squash and other vegetables were stored.

The house was large with room for his five children and at some point for University students to rent rooms. There were four working fire places. A greenhouse was built across the side of an ell that was built at the rear of the main structure of the old house. French doors opened from the green house into the living room. Raymond built furniture in a friend's shop to furnish his home. Mr. Lindel Brown Crandal, was a retired Apiarist on the University Extension staff. They became good friends. Utilizing Mr. Crandall's expertize and wood shop, Raymond built two saw buck tables and benches for dining for the Wallace home. One was of solid oak and the other of solid Walnut. He converted an old Mahogany piano into a huge table. It had a large storage area inside where the piano strings had been. He built a walnut

library table and a large walnut breakfront cupboard which my Sister Cora owns. He also made a lovely walnut sewing machine cabinet for his Wife. The other pieces were sold at auction when Raymond retired from the University and are now gracing someone else's homes.

As Botanists, the Wallace home had unusual plantings. Some plantings were left from the George Washington era. Lilac bushes in white and lilac that still stand today, were from that era. The dirt road to Storrs Rte. 195 was once lined with gigantic hard rock Maple trees. I recall at about. age 5, the road being paved for the first time. Others were recent plantings. There was a row of Hollyhocks planted along the green house which produced a profusions of color in the summer. I remember the Japanese beetles were a plague for those plants. Many of the Maple trees were toppled in hurricanes. One Christmas, the greeting card sent to friends and colleagues of the Wallace Family, was a map of the Wallace property showing where the various unusual Botanical plantings were located.

Raymond and Nellie bought antiques to refinish. If a property was newly furnished, the owner under the Rent Control Laws of WWII, could raise the rent. I did a great deal of that refinishing including three spool beds. There were a dozen small side chairs with woven wicker seats. I did the refinishing and Mother did the re-caning of the chairs. One of their finds was a very old blanket chest. It had round feet. Raymond found a paper wrapped around the peg holding one of the feet in place It was a paper referring to an indentured slave's release. It was likely sold with the chest. I still have a solid cherry chest of drawers from the early 1700's which Raymond purchased at an auction when I was 17. It was wobbly and Raymond was able to repair it. At age 14 or so. I mortified when Dr. Ralph Wetzel, a biologist friend dropped, by when Dad and I were working on the chest. and Dad referred to the knobs on Mary's chest.

The second floor of the ell had a lovely open beam ceiling at one end of the house. It had a beautiful wall of Bolton stone across the end which contained Mica that reflected light. The wood burning fire place had built in book cases on each side. This room served as a living room or a master bedroom. The house had two staircases that led to the second story. One was used when the upstairs of the house was rented. It had a separate entrance door to the outside.

Raymond installed a Refrigerator while most houses had Ice Boxes. I recall being given a small piece of ice to suck on when the Ice Man visited the neighbor's house. Raymond must have been very proud of this house, after his childhood of poverty. He continued to have projects for the house and property until the day he moved away. It had become a beautiful estate with the rolling lawns. He had a gas powered lawn mower in 1938 while most families had a push lawn mower. The property was near the top of the list of yearly property taxes paid in Mansfield.

The property had been a farm from the 1700's, and there was still a half acre of woodland with a little brook that coursed through the woods behind the house. It

was surrounded on three sides by stone walls with rocks removed from the land to facilitate tilling of the soil following the Little Ice Age. The Little Ice Age lasted into the mid 1800's in New England. Prior to that the soil was rich loam and free of stones. "*Widespread deforestation exposed New England's soils to winter cold, causing them to freeze deeper than they had before. This accelerated frost heaving, and gradually lifted billions of stones up through the layers of soil toward the surface. Heating an average-sized New England farmhouse during the late 18th and early 19th centuries, which coincided with the waning years of the "Little Ice Age," the unusually cool climatic period that lasted from the mid-1300s to the mid-1800s — required burning up to 35 cords of cut wood a year. The stones left by soil heaving, weren't conducive to farming, so, aided by their oxen, farmers hauled the stones to the outer edges of pastures and tillage lands, typically unceremoniously dumping them in piles that delineated their fields from the forest. The first priority was survival, which meant clearing land to grow crops and raise livestock. The artistry in stone wall building occurred after the 1830's. Colonial farmers previously had used rail and zig-zag fences made of wood."**
*John-Manuel Andriote with input by University of Connecticut geologist and stone wall expert, Robert M. Thorson.

The wooded area had been a swamp. Raymond hired men to excavate a meandering brook through the swampy area creating a firm lovely dry area along the banks. The brook never ran dry. All the neighborhood children played, each with their own spots along the edge of the brook. We spent hours on our "*homesteaded*" property. Mother had a large antique hand held school bell which she would ring to get us home for lunch and dinner and for other things of importance. Mother worried that the pristine odorless water in the brook might be contaminated. The brook's source was near the University dump. On our last trip East to see the area, the woodland had grown back after 50 years to forest even directly at the back of the house where it had been a huge lawn. I recall at age 5, walking in the woods with Raymond before school years began for me. He pointed out stinky Skunk cabbage and Lady Slipper plants. On one walk he was determining if the ground was suitable to build a house on. That led eventually to the log cabin he had built from 1938 Hurricane felled trees.

The Storrs home of Raymond Harold Wallace which he and hired workers changed over many years, from a depilated house to a magnificent home. It was surrounded by lush green lawns which grew in size over the years as more area was dedicated to lawn. It took the children four hours to mow the lawn with a gas powered mower. One day a stranger stopped by the house, complemented Raymond on how beautiful the lawn looked and wondered if he could borrow Raymond's lawn roller. There were such things as lawn rollers, but not at the Wallace home. They resembled a lawn mower but had a heavy weight where the reel of the lawn mower would have been. The operator would push it around on the lawn to even out bumps. We had no lawn roller. Raymond had replaced the tank to of a water heater at some time. He removed any protruding connections on the cylinder part of it and presented it to the children as a new playtime activity. We stood on it, balanced on it with our feet

would attempt to roll the tank around the yard with challenge and fun involved. Trying to stay on this *toy*, was rather like a circus clown act. Just incidentally, it smoothed out the lawn. I have no idea if Raymond planned it for a lawn roller or just for something for the children to play on. I suspect it was serendipity.

The Wallace Circa 1700 home at Storrs, Conecticut

Painting by Dorothy Wallace

In the very early 1940s, Raymond piled us all into the car one night to see the reflectors that had been installed by the Highway Department on posts on Rte. 44 on road curves and along bridges on a very dark but paved major road near our home. The headlights of the car reflected lights from them. It was something we now take for granted but made the trip a magical excursion. It certainly made night driving easier. White center lines on major routes were always there, but not on country roads.

Raymond bought my inherited stereopticon from Pete Sabin's at the local country store. A penny allowed the viewer to see all 15 views. It used to sit on Pete's counter and was a source of income for him in its early years, when men would congregate around his pot bely stove for companionship and warmth.

In yet another instance of a very wise decision, late one afternoon, on August 20, 1951, while at the Storrs home, Raymond hurried those of us present quickly down into the cellar. He saw rotating debris in the sky way behind the house and feared it was a tornado. He had experience with tornados in Missouri and Iowa when he was a young man. He bid us to take shelter in the cellar as quickly as possible, in no uncertain terms. It was indeed a tornado and is classified by the National Weather Service as an F2. It tore down huge maple trees and passed in the woods behind our house. We had no damage, though properties in the immediate path of the tornado, did sustain damage. Tornados are very rare in Connecticut, but they do occur. The scale of them is never that of tornados in the South and Mid west.
*An F2 briefly touched down in Willington, Tolland County. August 21,* 1951*: Coventry and* Mansfield *in Tolland County CT. Wikipedia*

Nellie Alice Thompson Wallace and Raymond Wallace always wanted their children to see interesting events. "In 1946 a Pan Am Commercial airplane, en route from LaGuardia field New York to London had an engine fire, soon enough after takeoff to enable the airplane to turn around and return for a belly-landing on a 4,500-foot grass strip in Willimantic, Conn." This was 13 miles from our home at Storrs. This was very early in commercial airline traffic, which was used primarily by the rich. There were no injuries to the crew or passengers. The first passengers off the plane were Sir Laurence Olivier, and his then-wife Vivian Leigh. "The fire had burned through the engine mounts by the time the airplane was back over land, and the big radial and its prop dropped off entirely and fell onto a farm field. Fortunately for all on board, Lockheed, obviously aware of the flammability of the Wright engines, had designed the Constellation's nacelles and stainless steel firewalls to encapsulate even a raging fire for 30 minutes." In 1946, the famous actors aboard made no difference to me as I had not yet read, "Gone With the Wind," or have heard of them. The first two passengers to debark were Sir Lawrence Oliver and Vivian Leigh. "When the airplane was repaired, it took off from the grass strip, lightened as much as possible and with minimal fuel. Still on three engines, it was airborne in 2,000 feet. Back at Pan America's LaGuardia maintenance hangar, the remains of the number-three nacelle were removed, the hole in the wing was faired over and the Connie flew back to California for major work. Until the advent of the

Boeing 727, it remained the world's fastest tri-motor." http://www.threadcity.com/articles/TomBeardsley/stars/index2.shtml

Raymond had his offspring in mind when with the help of his students, he obtained a huge arch shaped iron girder. By using ladders the students placed it in a crock in a huge Hard Rock Maple tree, 30 feet above ground level. From the girder they hung a rope. A gunny sack stuffed full of rags at the bottom end of the rope, made our *Bag Swing*. We and the neighbor kids spent hours playing on the bag swing. It was our favorite pastime. With it fastened so high up, it gave us long swings. We took turns and devised various games using it. We would "take off" from an old well cover 5 feet high which required a ladder to get to the top. In the winter the swing just hung there in the cold waiting for the arrival of spring. This was a wonderful inventive past time that was provided for us by Raymond Harold Wallace.

A three foot deep half circle swimming pool was a failure for that use. It was full of green water and frogs floating on boards until he converted it to a sand pile of magnificent size. The neighbor hood kids had their estates there as well

# Nellie Alice Thompson Wallace
# 1897-1965

George Washington made two difficult trips on horseback to Lebanon, Connecticut, Connecticut. Lebanon was the headquarters for preparations for the Revolutionary War. George Washington would have ridden by horseback directly in front of the house which was to become the Wallace home nearly 100 years later. Washington

would have passed by nearly unnoticed at that time. There would have been no special security. He was just another traveler on horseback. He undoubtedly stopped for subsistence at the Inn 300 feet distance from the Wallace home. A house at a few miles away at Mansfield Depot, a sign in front of the house reads, George Washington Slept here.

Lebanon, Connecticut is an unusual colonial town. It's Green is one mile long and is still used partially for agriculture. Farm animals grazed there in colonial times. The governor of Connecticut at that time, was Jonathan Trumbull, whose sons were also were noted individuals. One was an architect who designed the Colonial church next to the green. One was an artist whose painting of the signing of the Declaration of Independence, hangs in the Rotunda of the Capitol building in Washington, DC. Another son was a Sea Captain, whose ship was lost at sea along with all those on board, who were to be sold as slaves. The son who was the most famous was in charge of the Country's arming for the Revolutionary war. He operated a shop on the green in Lebanon. Businesses from New England shipped to him articles needed for the war effort from clothing to shoes, arms and gunpowder. This was a years long endeavor.

# TRIP TO THE MIDWEST

Anna Wallace had moved the family first to Livermore from Cowgill and then to Algona, Iowa. Raymond took the late Gene Van Alstyne, Cora's son, under his wing on his trips West. Gene Van Astyne wrote in a letter to me in 1997, "*I recall you and your siblings from your family, visited our home at Algona, Iowa about 1936 or '37. You were a very little girl and Charles was a baby.*" The trip was to show off their baby boy named for Charles Getty Thompson, Nellie's Father. Actually it was 1936 when the family took this trip. Charles would have been anywhere from four to six months old. Gene Van Alstyne wrote, "*I remembered Charles because he would coo, chortle and laugh at the high decibel range at 5 or 6 AM, making sleep impossible. I rudely*

*admonished him to shut up. Recognizing the Wallace tendency to be easily irritated , Uncle Ray laughed at my silly outburst."*

From age 3, I have few memories of the trip in 1935 when our family drove to St. Paul, Minnesota. I imagine this was to show off their new baby boy Charles Raymond Wallace, named for Charles Getty Thompson, Nellie's Father. We stayed in trailer parks on the way. It must have been an arduous trip for our parents with four children, and one of them being a nursing baby. I recall a baby cradle made of canvas like material, which hung from the ceiling of the car. It bumped our knees. Occasionally I was allowed to be on my Mother's lap in the front seat. They pulled a one wheel trailer which Raymond constructed. Their new 1938 Chevrolet pulled the trailer. Some times the older children, Dorothy and Cora, slept in the trailer at night. I remember a lovely pine woods we stayed in one night in a motel there.

In St. Paul, I recall walking and holding my Grandfather's hand as we strolled along on the sidewalk in front of the 1680 Capital avenue, now titled Thompson home. I was holding a new broom I had received for my 3rd birthday, celebrated there. I recall a stained glass window in the Thompson home in St. Paul. Years later in 2000, my husband Jim, had engineering meetings in Minneapolis. We drove to nearby St. Paul and drove by the house at 1680 Englewood Avenue, and saw one of the stained glass windows I remembered. A second stained glass window had been covered over from the outside by an overhanging roof on an addition. On the back of a very old photograph of Mother standing in front of the house at about age 12, the address listed was 1680 Capital Avenue. Google maps straightened this out for me, saying it was renamed Englewood Avenue. I have loved colored glass ever since. Incredibly the house went on the market a few years ago, and I viewed the interior of the house via the Internet. As a result, I have photos of the lovely stained glass window. It consisted of panes of pastel colored pane across the top of a window.


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# World WAR TWO

On December 7, 1941 the Japanese bombed Pearl Harbor. The next day President Franklin Delano Roosevelt in an address to the Nation, declared this a Day of Infamy. It was the start of World War Two. Lives on the home front changed dramatically. In an unprecedented act, scores of men signed up voluntarily for the armed services. Many others were drafted. Some were still in High School. With the work force depleted women went to work in the factories

Raymond served as an Air Raid Warden. A siren was mounted on his car. A phone call would announce an Air Raid, and off he would go on his assigned route, sounding the alarm in his prized 1938 Chevrolet. We would be terrorized since we never knew if it was the REAl thing or not. The house had to be totally dark. We

used to huddle together at the foot of the stairs. I imagine we had a flash light. Teen age warden helpers checked out to see that residents were compiling with the black out. Cars had the top half of their headlights blacked out so they were not readily seen from the air by enemy airplanes. Dad was not drafted into the service due to having five children. Even if he had no children, Raymond would been exempt from the draft because of his handicap from Poliomyelitis.

Raymond's green house for growing plants, became a whirlwind of activity. Burpee Seed catalogues came in the mail and large orders were filled and sent to our home. They grew many tomato plants in the green house and gave them to friends. Any one who had a spot of earth, planted a Victory Garden. I helped in the greenhouse transplanting seeding to individual disposable wooden holders. We all helped with the Victory Garden, preparing the soil, planting, weeding, harvesting and caning the produce. The annex to the photographic dark room became a floor a ceiling room of shelves for canned goods. There were tomatoes, corn, and green bean. Wild berries were harvested along side roads and processed. Mother made jam. We had wild grapes, sauerkraut and dill pickles which Raymond fermented in a huge barrel. It was all caned. We worked very hard at these endeavors. Raymond obtained a pig, chickens, and three geese and raised them in our yard. With Nellie, we worked very hard at these endeavors. Raymond obtained a pig, chickens, and geese and raised them in our yard. The chickens were slaughtered and some roasted and eaten. Many were canned in a pressure cooker, but never used since Mother Nellie feared sepsis and Botulism. With a background in chemistry she was aware of such things.

The University continued operation, though most of the students were female. Many of the young men in our area and in the County was reflected in the largely female population at the University.

During WWII the Wallace family raised chickens for *the War Effort.* Raymond built a sturdy chicken coop with a water proof roof. It was about 10 feet tall and had one large window. An enclosed fenced yard with chicken wire, formed a large area for the chickens to peck away in the dirt out side. A large number of very cute fuzzy yellow baby chicks arrived in the spring. They lived in the basement in an open top enclosure. When they matured enough to be able to almost get out the enclosure, they were moved into the chicken coop. The chickens slept in the chicken house at night and laid their eggs in nesting boxes inside. Chickens make one cry when they lay an egg. It is sort of a "puck puck puck, pa da` dit," sound as if they were announcing the egg's arrival with pride. I asked the Internet what it sounded like when a hen laid an egg. However they showed a rooster with a full coxcomb making a different sound. Both my Sister Cora and I thought we heard the other sound first and hurried to collect the egg. I fried mine and I imagine Cora did the same. Mother never let on that it was on different days.

It was my chore to bring water to the chickens every morning even on school days, winter and summer. In winter the water had to be warm enough to melt the ice in their water dispensers. It was very hard work for an 8 year old, especially carrying

the heavy bucket of water. Nellie collected the eggs which were either eaten by the family or sold at the local small grocery store near by, operated by Pete Sabins. For my effort in the egg operation, I was paid 2 cents an egg. It was plenty of money for me to save and buy small things and candy. That is how I bought with my savings a lithographed cardboard two story doll house from the Montgomery Ward Xmas catalog for $1.98. The house came with wooden furniture which I still have. However, the cardboard house I am sorry, I did not save. I did see the exact house in a Doll House Museum in Denver, Colorado, many years later.

An airplane spotting station was placed on top of Beach building on Campus. I recall my older Sister Dorothy, took her turn manning the station. When a plane was heard or seen, she would speak into a short wave radio, "One, high, seen, Freeman 336, over." Very few airplanes passed over. My Sister Cora and I tagged along. The University continued in operation, though most of the students were female. Many of the young men in the entire country were drafted or joined up. Service to ones country was foremost in the population's mind.

Raymond Wallace had come home for lunch every day and listened on his cherished to the War News from Europe at noon with rapt attention. The children were admonished to absolute silence during these broadcasts. He followed conquests by the Allies on a National Geographic map of Europe and marked with a red glass slide marker, on the progress made. The map which hung on the wall between the kitchen and the living room in a sort of library annex.

After the War, the chicken operation ceased. The chicken coop was cleaned out, in a yearly horrible task and became a hang out for my Brother Charles, our dog *Puggy* and the Bushnell boys. Eventually they had a wood stove installed for comfort in the winter, courtesy of Dr. Ralph J. Bushnell who lived next door. Many hours were spent inside this hut by the friends. Long after the Wallace's sold the property, on a visit by myself and my husband, after 1959, it appeared that College students were living in the chicken coop.

**SCOOTER**

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"*U.of C. Scientist Builds Gas Saving Motor Scooter*
*Special to the Hartford Times" No date available but copied from news clipping from the, "Hartford Times"*

*"Storrs- Dr. Raymond H. Wallace of the University of Connecticut botany department has designed and built a motor scooter for economical transportation from this home to the university, a distance of two miles.*

*Soon after the declaration of War and the subsequent shortage of rubber and gasoline, Dr. Wallace conceived the idea of building a mean of conveyance which would require the minimum amount f rationed commodities.*

*After drawing the model to scale, he looked around his place for suitable parts and found the motor of his lawn mower. However, with the coming spring ad am acre*

*of lawn to mow, he decided to keep this motor strictly for the purpose of mowing the grass. And purchased a one and-one half horse power motor for use in the scooter.*

*At present the scooter , which is registered as a motor scooter, model handmade, has speeds up to 20 miles per hour. Dr. Wallace plans to put on a second speed which will give up to 35 miles per hour and incidentally more miles to the gallon of gasoline. A t 20 miles per gallon he uses one gallon of gasoline for 70 miles; if he geared to 35 miles for hour, he would be able to make 90 miles to the gallon. Other parts of the scooter include the fork from his trailer, a wheel barrow wheel into which he put roller bearings and an iron frame.*

*Most of the actual construction was done at a local shop. The seat upon which he rides covers all the driving mechanism; the controls, clutch, throttle and brake are on the handlebars which were originally for a bicycle. To start the motor, he uses a rope as one does on an outboard motor boat, but eventually he plans for a foot starter.*

According to Dr. Wallace, he had been too busy making the motor scooter mechanically reliable to put on any fancy touches. However he had painted the plywood seat white, and his daughter, Dorothy, decorated it with a line drawing of a man wearing a top hat from old print of a walking bicycle. The front wheel with spokes was many times larger than the small back wheel. Dr. Wallace's main concern has been to make the scooter stable and low geared for hill climbing".

Raymond used the scooter in the warmer months to travel back and forth to the University.

Raymond was a true entrepreneur. Articles and photographs about him frequently appeared In the Hartford newspapers for his various projects.

It is documented that the Poultry farm at the University had students living inside some of the chicken coops during the War. There are photographs of this. The University was still raising chickens and selling eggs. With the male work forces away at WAR, Mrs. Betty Seaver wife of Stanley Seaver, a professor of Agriculture and who rented our log cabin and Mrs. Mary Wedberg, wife of a Professor of Biology at the University, worked at the University Poultry Farm, taking care of the operation. Every able bodied female worked for the *War Effort.* I learned of this personal involvement from Mary Wedberg in recent years. She is a 93 year old Facebook friend.

# May 2, 1945 end of WAR

Germany surrendered unconditionally to the Allies at Reims on May 2,1945. General Dwight Eisenhower demanded complete surrender of all German forces, those fighting in the East as well as in the West. Reims, France is about 89 miles from Paris.

Four months later, on August 6, 1945, and only after the Enola Gay piloted by Colonel Paul Tibetts had dropped an atomic bomb on Hiroshima, and three days later Major Charles W. Sweeney piloted a plane that dropped an atomic bomb on Nagasi, did the Japanese Government surrendered unconditionally on September 2, 1945 on board the USS Missouri on September 2, 1945 in Tokyo Bay. Several of the Japanese dignitaries wore top hats for the signing ceremony. Empero Hirohito was not present. At last the war was over and Peace ruled over the world again, though sadly not for too many years.

We had endured fear and scarcity of many products for the duration of the war, but they were paltry compared to what citizens endured in Europe. There was strict rationing for products needed for the forming of the army. There were ration coupons for the rationed items. There was gas rationing. Sale of such foods such as sugar, coffee, butter were restricted. Shoes made of leather were rationed, as were those containing rubber. In a family photo of the Wallace family taken after D-Day, the shoes of my little sister Liz and of my Father are worn and scuffed. Nellie is wearing in the photograph, black stylish shoes which I remember were made of cardboard. It seems impossible now. We endured with Yankee know how. Adults with children used the ration coupons for their children who needed new shoes more frequently as they grew. Rubber desperately was needed for the tires of the hundreds of military vehicles being manufactured. Automobiles and tires were rationed. The United States Prepared for war for over three years and it was finally over. If an owner's car was in bad shape, it was even worse by the end of the war. A neighbor's car was in bad shape, and when production of military vehicles reverted back to the manufacture of stylish cars, a neighbor bought the first new era one I had seen. It was a fancy Studebaker.

There was great elation in the Country, On September 2,1945, when the Japanese finally surrendered. Celebrations were held. A well attended rally was held the

next evening on the University of Connecticut campus at Storrs at a parking lot at the intersection of North Gurleyville Road and Hillside Road. I remember it well. A huge bon fire was lit and dignitaries spoke. We used sparse gasoline to drive to the campus for this event. The Wallace chicken operation ceased. With WWII over and peace declared, the University changed in many ways.*
*Wickipedia

A wave of cotton kaki men's slacks appeared on campus. The former part of their military uniforms were worn by the vets under the GI Bill of Rights, who had enrolled at the University. It made a fashion statement which has continued to current times. It is amazing in retrospect. Previous to this, men's garb were dark colored slacks yet in the warm, humid summer, fashion dictated that men white cotton wrinkly suits.

In our immediate neighborhood at Storrs, we had several returning GI's who were neighbors, friends and University of Connecticut University returning students. One Vet moved into a small house across the street. When we he came into our lives, he was a handsome, strapping friendly and outgoing young man. His young wife had been a designer in one of the famous department stores in New York City. He drove a Jeepster and would give the neighborhood children rides. He told us his Father was the President of Chase Manhattan Bank in New York City. I commuted with him to the classes on campus. He told us he had been captured at age 18 by the Nazis and was in an interment camp as a prisoner of war. He had been subjected to atrocities by the Nazis. Those Nazis made his life a horror and it is amazing that he was so well adjusted when we knew him. His Father Percy Ebbott, was President of Chase Manhattan Bank at the time of his son's capture and it was believed he was used by the Nazis to extort financial concessions from Chase. His son was finally liberated by the Russians and returned to the American military. He was interviewed in June of 1946 concerning the actions he witnessed as reflected in the records of Nazi War Crimes now available on line. He was captured at the time of the Battle of the Bulge. He was a medic and received a Purple Heart and a Silver Star for his bravery.
www. historynet.com

The Battle of the Bulge raged from December 16, 1944 to January 25, 1945 in Northern France in the thick, wooded area of the Ardennes Forest region stretching from southern Belgium, Luxembourg, and into Germany. There were 75,00 causalities among the Allies, while Germany suffered more than 100,000 deaths. This was the last major offensive of the Nazis. On May 5,1945, the German High Command surrendered. Hitler had committed suicide.
Wikipedia

A GI named Hamilton Grant rented out garage apartment along with his young wife. He told us he had been a spy for the US forces in France and when a **WANTED POSTER** of his likeness was plastered all over in the area, he quickly changed his appearance by shaving off his beard, cutting his hair and altering his clothing to

deter recognition. He escaped detection from the Nazis, but not with out frightening close calls. His dog was killed by a car in front of our house. My Bother's wooden toy chest, a Christmas present to Charles, became the casket the dog was buried in.

**Raymond's Mid West Family**

The four sibling of who Raymond grew up with, each visited our home at Storrs, Connecticut. Cora visited in the late 40's and Mary in the 50's. Aunt Cora was a very good cook. and spelled Nellie for that chore. One night for dinner she made hand made noodles. They were delicious. Her son.

While Aunt Mary Mason was visiting at Storrs, she was sewing a garment that needed many button holes. I had a new sewing machine and my parents brought Aunt Mary to my apartment for me to make the button holes on my new machine. It was a long visit as I LEARNED how to use the button hole attachment. Mary was a tiny lady. She was given an antique Lincoln Rocker, which was perfect for her size. It was shipped to her home. Aunt Mary Mason, of interest had a daughter who delivered sextuplets. None survived, and each was buried in a tiny white casket, we were told.

According to my Brother Charles, Raymond's Brother Avery visited at Storrs in the late 50's when I was away at school. He was a chimney sweep in Canada and had left the family nest for Canada at age 12. Raymond's Brother Colonel, from New Hampshire, supplied magazines on an established route in the New England and he would stop by once in a while and always left the children stacks of Comic books. We loved that! Raymond was not too pleased that we read comics. A few times Colonel and his wife May, came with him. His one child Nona, stayed with us for several days one summer. Nona had a beautiful Soprano singing voice. My Mother told me how the two couples were sitting on the grass at the Storrs house when May noticed the diamond in her ring had fallen out. Eagle eyed Nellie actually found it in the grass. That is about impossible.

Raymond's Brother Lee, one of the offspring who left with the father, visited at Storrs after which, Raymond chose to have no further contact with him. Lee was at one point a patient at the Napa County Hospital, at Napa, California, a hospital for the mentally ill. He had a major alcohol problem. I had heard about him from my Father. Then one day in San Diego, in parking lot at a drug store, I saw a man who looked just like my Father. I so feared it might be the brother that I did not approach him. I regret that now.

The Obituary notice of Anna Catherine Mohn:

“ShowAnna Catherine Mohn Burial

| | |
|---|---|
| Birth: | Nov. 25, 1865<br>Lisbon<br>Linn County<br>Iowa, USA |
| Death: | Mar. 28, 1932<br>Algona<br>Kossuth County Iowa, USA |

“Dates from obituary and stone do not match. I took her death date from her obituary. Her parents were married in Nov 1864 so I put her birth in 1865.

Anna married George Wallace in 1881. They were the parents of 10 children: Everett, Avery, Mary, George, Lee P, Fred, Cora May, Colonel, Raymond, and Ruby C, who died in infancy.

March 30, 1932 - Algona Upper Des Moines - Mrs. George Wallace died last Friday at the Kossuth hospital after suffering a stroke of apoplexy at the home of her son, George, at Wesley about two weeks ago.

Anna Catherine Mohn was born on November 25, 1864, at Lisbon, Iowa, and died March 25, 1932, at Algona, having attained the age of sixty-seven years and four months.

She was united in marriage to Geo. W. Wallace in 1881 and to this union was born ten children. One child died in infancy and another, Everett, at the age of 21.

Those surviving are Avery of Marcelin, Saskatchewan, Canada; Mrs. Mary Mason of Worthington, Minnesota; Geo. Wallace of Wesley; Lee and Fred of Algona; Mrs Cora Van Alstyne of Algona; Colonel of Rochester, New Hampshire; and Raymond of Storrs, Connecticut.

One sister, Mrs. Carl Hedrick, lives at Glenwood, Colorado, a brother, Frank Mohn at Plains, Kansas, and a brother, Albert Mohn at Cowgill, Missouri. She had eleven grandchildren and a host of friends at Livermore where she resided for eighteen years.

She had been for thirty years a member of the Methodist church. Funeral services were held at the Laird & McCullough chapel Monday afternoon at twelve-thirty and at Livermore at two-thirty. Rev. C.V. Hulse of the Methodist church in Algona officiated.

April 1, 1932 - Humboldt Republican - Livermore - Mrs. Anna C. Wallace, sixty-eight years of age, a former resident of Livermore, passed away last Friday in the hospital in Algona, following a short illness with apoplexy.

Mrs. Wallace lived in Livermore for many years, but left there a couple of years ago to make her home with her children. During the past year, she has made her home with her son George, near Wesley.

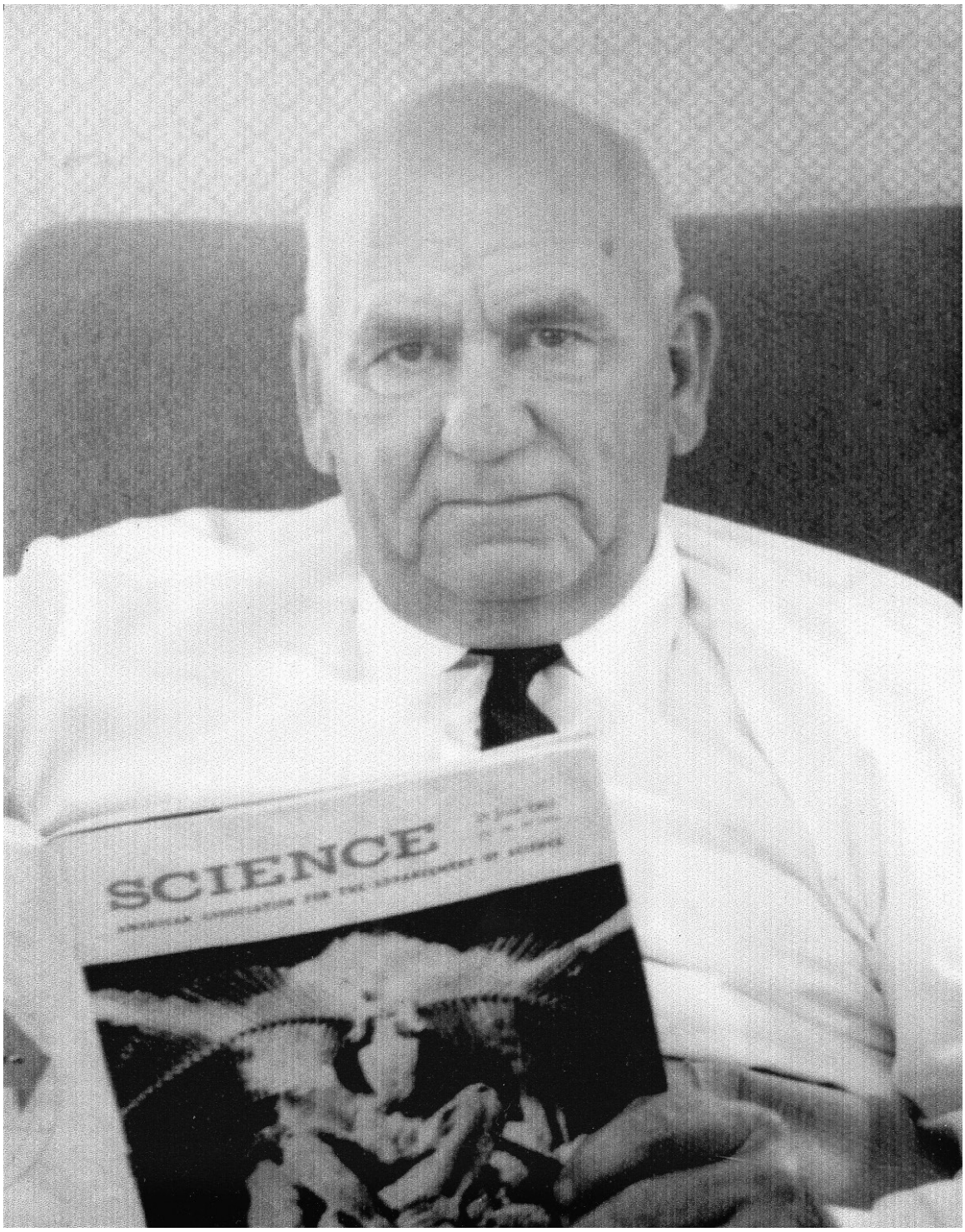
Funeral services were held in the Methodist church in Livermore, Monday

afternoon, of which she was a member, with the Rev. Baddeley officiating. Burial was made in the Union cemetery near Livermore.

Mrs. Wallace leaves to mourn her death six sons and two daughters. They are: Raymond, in Connecticut; Colonel in New Hampshire; Avery, in Canada; Lee in Fort Dodge; George and Freddie, Wesley; Mrs. Mary Mason, of Missouri; and Mrs. Cora Van Alstine of Algona. “

Family links:
Parents:
William Mohn (1835 - 1909)
Mary A. *Fink* Mohn (1840 - ___)

Siblings:
Anna Catherine *Mohn* Wallace (1865 - 1932)
Albert B Mohn (1878 - 1944)*
Edward G Mohn (1882 - 1942)*
Pearl Clyde Mohn (1884 - 1955)*




**Dr. Raymond Harold Wallace**
**Circa 1965Jerome Arizona**

I had met Gene Van Alstyne through an address he found in his late Mother Cora Van Alstyne's correspondence. When Gene exited his home to greet us, I was startled to see his piercing brown eyes such as what Raymond Harold Wallace had and that I have inherited. It was rather like glimpsing my self in a mirror. I had been told several times by friends that I had eyes like his. His wife Lorraine is a very pleasant lady who had endured a life with an abusive husband previously. Lorraine treated us to a lovely dinner where we met Gene's son Todd Wallace who was a Park Ranger at Mount Rushmore. Gene showed us his huge collection of Indian Arrow heads he had collected over many years on the plains of South Dakota. He mentioned the Prairie dogs which make horse back riding and walking on the plains treacherous due to the many burrow entrances created by the burrowing Prairie dogs. It is easy to break an ankle. Gene Van Alstyne told me that Raymond's Mother's house held many of the cut off light bulbs with plants growing inside them in a sealed environment.

I Gene was buried n the National Cemetery at Sturgus, South Dakota. Jim, my husband and I, visited Gene at the home of his second wife Lorraine, in Rapid City, South Dakota. Jim photographed Gene's many historical family photographs while on this trip. Jim drove us all, on a driving tour though South Dakota directed by Gene. Gene was a retired History Teacher at the Rapid City High School. We visited the Buffalo reserve at Custer State Park, where it happened to be the day when the reading of the yearly tubercular skin tests on the herd of 1300 Buffalo, was in progress. Veterinarians did the readings and Trustees from a jail wearing jail clothing, herded the beasts into chutes to accomplish this deed. It was indeed fascinating. Gene and Lorraine Van Alstyne, though long time residents of South Dakota, has never witnessed this before. The buffalo's hooves made a thunderous roar as they exited the chutes and flew off onto the range. There were 1300 Buffalo being skin tested for tuberculosis

Buffalo meat is for sale at certain times during the year from this source. A Buffalo hunt at Custer State Park is a management tool to remove the oldest breeding bulls from of the herd. These bulls are typically 10+ years old. After the summer rut, these bulls leave the herd and winter by themselves or in small groups throughout the park. A typical bull will weigh about 2,000 pounds. Hunters have a maximum of three consecutive days to hunt. The season begins late November and closes mid January. Hunts are scheduled Monday through Friday excluding holidays. Hunts begin on Mondays and Wednesdays. Hunters are allotted three days. Typically the hunt is completed in two days. Private ranchers raise Buffalo just for the purpose of selling Buffalo meat.

South Dakota Administrative Rule requires the hunter to be guided during this three-day hunt. The park provides a guide, field transportation for the hunt, and field handling of the animal. The guide indicates which bulls are eligible, and approve the location that they may be shot. This is a firearm only hunt. Rifles must be at least .270 caliber and

generate a minimum of 2,200-foot-pounds of energy at the muzzle. Typical shot distance is 50-100 yards. http://legis.sd.gov/rules/DisplayRule.aspx?Rule=41:06:42

Also we visited Mount Rushmore National Monument, the Black Hills of South Dakota, Deadwood City, a restored gold mining city from the 1800's and Sturgus, South Dakota, where the annual international Motorcycle rally has been held since 1938 but for the WWII years. On our way to visit Gene and Lorraine, by ourselves, on our way into Rapid City, we visited a museum at Hot Springs, South Dakota where excavations from the Pleistocene era are still going on. Many fossilized Mamoth skeletons were on display. It all was fascinating for this lover of fossils.

Gene told me many things about his Uncle Raymond. Gene tagged along with Raymond on his trips West. He remembers the driveway to Raymond's Mother's house, was lined with trees, Raymond had planted. He told me his Mother's house had many plants growing inside the house in light bulbs. Raymond had devised a method of growing plants in a sealed environment. He used large light bulbs from which he removed the bottom, sealed the bottom with bee's wax and used them as a mini sealed greenhouse to grow plants within. The plants thrived. Decades later this concept was tried in the Biosphere with humans living inside. My parents mentioned much later after they visited the site of the Wallace homestead in Cowgill, that not only was the house gone, but also all the trees Raymond had planted were missing. It was likely part of a corporate farm.

**OBITUARY Eugene E. Van Alstyne**

RAPID CITY - Eugene Everett Van Alstyne, 82, of Rapid City died Saturday, Oct. 4, 2003, at Fort Meade Veterans Center.

He was born Jan. 22, 1921, to Horace A. Van Alstyne and Cora M. Wallace in Algona, Iowa, where he also graduated high school. Gene joined the Army in 1942 and served until 1946 as a surgical technician, with a brief tour of duty in the Pacific in 1945.

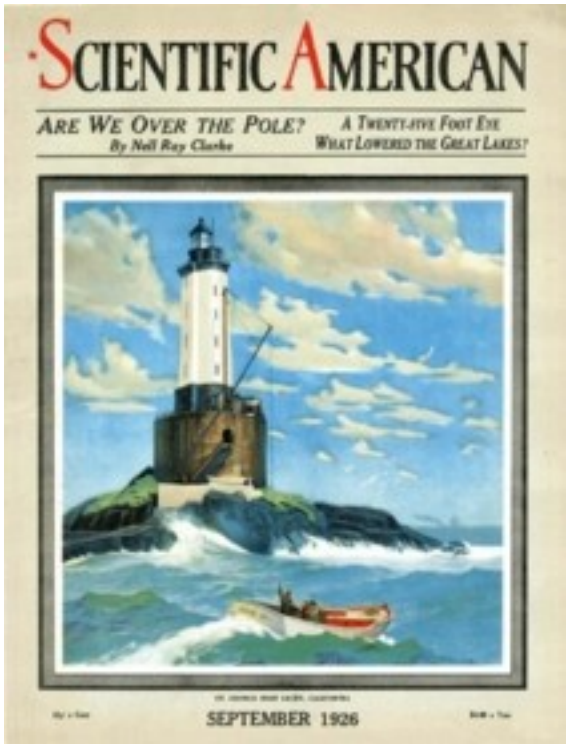
He married Dorothy J. Herbert in 1946 while they were both students at Dakota Wesleyan University in Mitchell. Together they had four children. He graduated from DWU with a Bachelor's Degree in 1948. He later earned his Master's Degree in American History from the University of South Dakota in 1972.

Gene taught and coached for 33 years in South Dakota schools, the last 23 years in Rapid City public schools. He was dedicated to teaching inside and outside of the classroom. He had many coaching successes, most notably with the West Junior High wrestling program's long string of city championships.

He retired from teaching in 1982 and married Lorraine Ehrich in 1987. They enjoyed 16 wonderful years of marriage. Together they attended South Canyon Lutheran, where they were both active in church programs.

He was a member of the American Legion, VFW Post 1273 and was a lifetime member of the South Dakota High School Coaches Association. Gene loved traveling the west, outdoor photography, hunting, fishing, woodworking, and collecting cameras and western art. He shared his love of the outdoors and history with his family.

He was preceded in death by his parents and sister, Margorie. He is survived by his wife Lorraine and sons Todd Van Alstyne, Rapid City; Mark Van Alstyne, Helena, Mont.; daughters Karen Muhler, Denver, and Jeanne Van Alstyne, Winner; stepchildren Rodney Ehrich, Casper, Wyo.; Steve Ehrich, Plevna, Mont.; Janet Frame, Belle Fourche; Jodene Huffman, Rapid City, and Linda Wertz, Abilene, Texas; twenry grandchildren and six great-grandchildren. Gene will always be remembered as a caring, devoted father and friend by all.




Scientific American Magazine
September 1, 1926
Raymond Harold Wallace
Plants Grow in Air-tight Containers
The Balanced Processes of Green Plants Enable Them to Live Almost Indefinitely in an Hermetically Sealed System

*The Balanced Process of Green Plants Enable them to Live Almost Indefinitely in an Hermetically Sealed System environment all forms of life are characterized by their ability to adapt themselves to the greater or lesser extent to their environment in a manner most advantageous to themselves. It would seem almost impossible, however, for a living organism to be so constituted that its processes would enable it to live and grow in an hermetically sealed system, that is, isolated from all external factors except*

*light and heat. Some green plants have this ability, however, and can live for long periods of times in such a chamber.*

*All living organisms take in food materials and excrete waste products. Hence in order that an organism may survive for any length of time in a closed system, its vital processes must be cyclic so that no essential substances becomes unavailable or exhausted. It is plainly evident that an animal could live such a confined existence for only a very brief period, since it must be supplied with a source of energy, such as food, and an oxygen supply must be continually replenished: Otherwise it would be suffocated by the products of its own respiration.*

With both parents Botanists, some of the family had terrariums. Raymond made them for us using glass gallon jugs. He would tie a cotton string around the jug just below the part leading to the spout part of the jug. With the string saturated with a flammable liquid, the glass would break away when the string was ignited, leaving a smooth surface. This is likely the process he used to transform light bulbs into greenhouses! Our terrariums were not sealed but had plate glass to cover the top. I could find suitable plants, including moss and small stones on our property, to a create miniature garden. I had several of these and carried the idea into adulthood, when I used an aquarium for a terrarium. It was a great pastime.

Before Raymond retired from the University he and Nellie many took summer trips, mostly to the Mid West. One trip they took was to Florida where many people from Storrs moved after retirement. They did not like Florida at all. Raymond had been in the desert of Arizona as a graduate student and always had wanted to return. He loved the area. They considered Arizona as a retirement spot and subscribed to the local Cottowood News Paper to get a feel for the area and see what the weather patterns were. Never having checked out the area in person, they decided to move to Jerome, Arizona. They were surprised to find that Jerome had winter with snow, but that is not surprising since just 8 miles distant is Mingus Mountain which is at 8015 feet elevation. Jerome is in Arizona's Black Hills and within the Prescott National Forest at an elevation of more than **5,000 feet**. It formerly was a copper mining town. It became a large artist's colony and tourist area. The copper mine is fantastic to visit. The area is a Historic State for Indian ruins such as Montezuma's Castle and Tuzicot National Monuments. Jerome itself, had 15,000 residents in 1920 but by 1953 when the mine closed, it was down to 450 souls. The town remained a Ghost Town of note. It formerly was a copper mining town.

# CELLUOSE ACETATE

In the 1930's, Dr. Wallace was interested in the use of a plastic material called cellulose acetate or, "film." It let all rays of the sun including the UVA's, UVB's, and UBC rays pass through. UVA rays cause warmth, and sun damage in the form of sun burn and can cause Melanoma, the worst form of skin Cancer. It takes just 10 seconds of exposure to the sun to cause skin damage at the cellular level. UVB rays pass through glass and cause warmth and skin damage, but no sun burn. UVC rays do not present a problem to humans since they do not pass through ozone. 50% of UVA rays can pass through glass, 60% has been confirmed in car windows. UVC rays are mostly absorbed though the ozone layer in the atmosphere and are not a problem for sun damage. Raymond used the cellulose acetate in windows in our home. In the 60's it started being used prevalently in green houses.
*www.skincancer.org*

Raymond Wallace installed windows in our home utilizing cellulose acetate. His baby daughter had a sun tan by the age of 6 months from resting in her baby crib for hours each day in the sun's rays. I recall Nellie speaking of this when visitors arrived and looked in on Elizabeth sleeping in her crib in the sun porch. The sun porch was an extension and part of the living room. It was not known at this time that the harmful affects of the sun's A rays pass through glass. I have had 18 micro surgeries on my face for basal cell carcinoma. Most of this skin damage likely occurred when I played for hours in the winter in the green house under the warm sun's rays. Raymond experimented with different millimeters of thickness of film on is wife Nellie's back. I remember they would go into the woods to an open field to do this. The children would be with the childcare live in, Darlene Purvis. I have the original snap shot he developed in his photographic dark room. He encased it in cellulose acetate. The enclosed photo was reproduced through the, "Film."

It was a very stressful time when Raymond needed to replace the "film" in a window due to it failing from a tear or other wise. Luckily it did not occur very often. I recall one time when potential clients were at the house and Raymond pounded on the cellulose acetate window to show its durability. The window broke much to his embarrassment. To replace the cellulose acetate, it involved using acetone to seal the new film in place. This always was accomplished at his lovely Saw Buck Oak table in the kitchen, where the family ate most of their meals. The film was applied wet, to a special cellulose strip around the perimeter of the frame using acetone. When it dried, it was tight and clear. It was a time of great anxiety while this was accomplished.

"Ames Daily Tribune from Ames," Iowa January 10, 1938


Nellie Wallace's back used to test skin reaction to various film thicknesses.

**Sir Wilfred Grenfell, Medical director of the Interntional Grenfell Assocciation**

Wilfred Grenfell
**Born:** February 28, 1865
**Died:** October 9, 1940 (aged 75)
**Nationality:** Welsh
**Occupation:** Actiist
**Bio:** Sir Wilfred Thomason Grenfell, KCMG was a medical missionary to Newfoundland and Labrado

Sir Wilfred Thomast Genfell's, Medical books are written by or about Wilfred Thomason Grenfell, MD, (1865-1940) who retired to Charlotte, Vermont, in 1932, after spending 40 years working in Northern Newfoundland and the coast of Labrador. An English doctor and knighted by King George V, Sir Grenfell was a medical missionary who established hospitals, schools, an orphanage, and co-operatives, improving the health care, education, and economic standards of many of the coastal inhabitants. The books focus on his life and his observations of the difficult living conditions that he worked to improve from 1892 to 1932. In 1931, Dr. Grenfell and his wife, Lady Anne Grenfell, opened the well known Dog Team Tavern, in Middlebury, Vt., as a tea house and shop.

Their goal was to establish another source to benefit the people of Labrador and Newfoundland by selling their handicrafts. The not-for-profit, registered Canadian Charity, Grenfell Historic Properties, St. Anthony, Newfoundland and Labrador, continues the mission effort today. *wikipedia

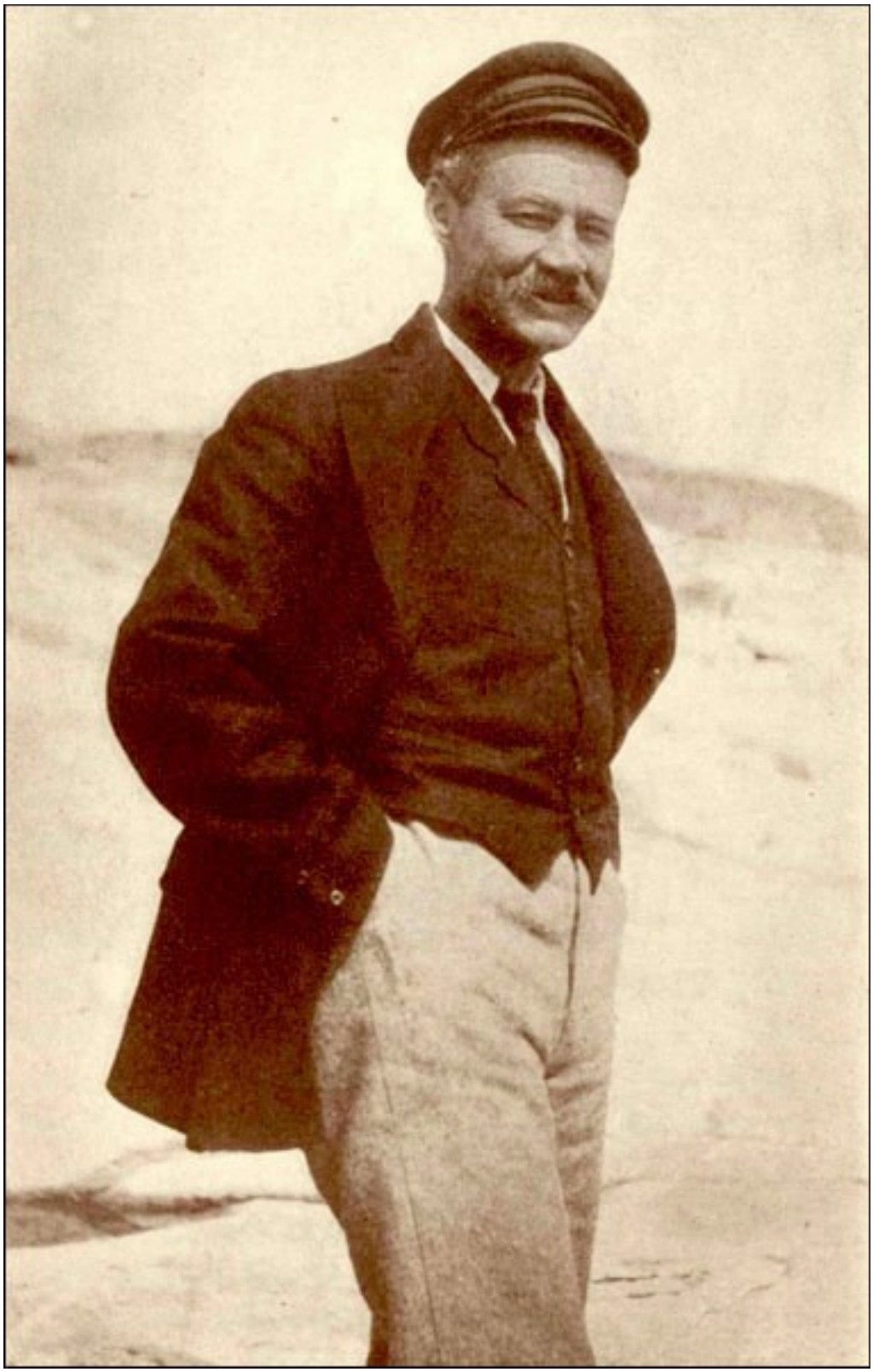
Sir Wilfred Grenfell of Labrador was interested in Raymond's use of Cellulose Acetate and contacted him. He wondered if Tubercular Eskimo children would benefit from basking in the sun in Solaria to manufacture their own Vitamin D. He invited Raymond to travel to Labrador to assist in the building of Solaria using Cellulose Acetate rather than glass in the widows and roof. Sir Wilfred visited Raymond at our home twice that I was aware of. He came in a chauffeured limousine. In the summer of 1938, at the request of Sir Wilfred Grenfell, Raymond and his friend Lindel Crandell, who held a BS and was an extension Apiarist at the University of Connecticut, traveled to Labrador by train and ship to build a solarium which would utilize Cellulose Acetate rather than glass. It must have been an arduous trip. The papers of Sir Wilfred Grenfell are at Yale University and Raymond Wallace's letters are listed. Sir Wilfred Grenfell died in 1940. His Missions continues to this day, but with WWII commencing there was no more news about the solarium and the affect on the UV radiation on tuberculosis. Lindel Crandell, was a skilled woodworker. Raymond had worked in his shop building furniture for the Wallace home. Raymond took many glass slide photos on his trip which were donated recently to Library Archives Canada or LAC in Canada by his Son Charles Wallace. From the messages to Nellie from Raymond, it sounds as if Dr. Wallace accompanied Dr. Curtis on his rounds to Eskimos in Labrador. Dr Cuis was also a missionary doctor.

When News of Grenfell's death came on the radio one October morning, my Mother cried. It is the first time I had ever seen her in tears

Nellie learned to drive and obtained a Connecticut Driver's License in preparation for Raymond being gone on this trip to Labrador. She would be left alone with five children aged from a six month old baby to the eldest who was 10. Whether the sun's rays benefitted the Eskimo children, as far as tuberculosis goes, we do not know, but it is doubtful. Even in 2015 there are serious cases of resistant Tuberculosis to drugs. Sir Wilfred died in 1940 and no more was ever done about the project with WWII beginning.

*Yale University, Manuscripts and Archives*
*Guide to the Wilfred Thomason Grenfell Paper*
*January 1981 Revised 2012 New Haven Connecticut*

Picture Source: Wikimedia Commons



Sir Wilfred Thomason Grenfell, 1865-1940

Raymond brought back many gifts from this trip. To mention a few, there were two black bear skin rugs which were place in front of our fireplaces. The children received gifts of 3'x4' hand hooked rugs. Mine depicted a dog sled team pulling a sled through the snow with a man running beside. It was lost to time, but incredibly I found a nearly identical one at the Leucadia Swap Meet in the 1950's. There were Grenfell cloth hooded parkas with white baby seal fur trimming around the face for everyone in the family. Grenfell cloth is Egyptian cotton 600 thread per square inch and was created for Sir Wilfred Grenfell by Walter Haythornwaite. There was a chunk of the mineral Labororite now mined in Madagascar as well as Labrador. Labradorite has flashes of flashes of blue, yellow, green and black colors . It is used in jewelry pendants and earrings and in larger pieces just for decoration. There were two Eskimo dolls made of seal skin. One was made of white baby seal skin fur. And the other gray-brown fur skin. Both are today Vintage Museum quality pieces. There was a carved man in a kayak made of wood. There was a very long intricately woven whip to use on the dogs as they pulled loads on sleds. There were seal skin boots for all of us. There were small hand hooked mats depicting Labrador Scenes. It is now illegal to transport such Native American items made with Seal Skin into the country.


SIR WILFRED GRENFELL
5
CANADA
POSTES POSTAGE

Wallaces in our Eskimo Suits
Storrs, Connecticut 1938
Mary, Charles, Nellie, Dorothy, Cora


In the early fall in Connecticut it was extremely rainy. I was given a pair of black Mickey Mouse boots which I wore to wade through many areas of the lawn which were under water at our house. One day as a five year old, I was invited by Raymond to accompany him to see the flood damage in the area. Route 44 road at Mansfield Depot was under water where the river usually passed under the road in a culvert. We drove to Hartford and saw where the Connecticut River was out of its banks creating a massive flood. Even at my age it was a memorable sight

# The Great New England Hurricane of 1938

*New York, NY Weather Forecast Office*

**On September 21, 1938, soon after Raymond's return from Labrador, one of the most destructive and powerful hurricanes in recorded history struck Long Island and Southern New England.** This storm is still widely mentioned as the worst storm to ever hit New England., Hurricanes were not named at the time. It killed over 600 people in New England. At our home at Storrs, Connecticut situated 30 miles from the coast, we had no power for three weeks. Hundreds of trees were felled by the winds. Salt spray killed vegetation and stripped any leaves from the trees. The conifers were turned brown from salt spray.

**The storm developed near the Cape Verde Islands on September 9, tracking across the Atlantic and up the Eastern Seaboard. The National Weather Bureau did not warn of the impending danger nor were they even aware of the potential of such an event.** *Charles Pierce. He was the new guy, who had been studying the movement of this storm carefully. He concluded that the hurricane was tracking due north and west, and would strike New England. The senior meteorologists noted that the hurricane had lost some of its strength– it had been downgraded to a Category 3 and was about 150 miles east of Cape Hatteras, North Carolina. They vetoed Pierce's suggestions and called for a forecast of cloudy skies and gusty conditions.* newyorktraveler.net/the

**The storm hit Long Island and Southern Connecticut moving at a forward speed of 47 mph! Sustained hurricane force winds were felt across central and eastern Long Island and southeastern Connecticut. The hurricane produced a destructive storm surge flooding coastal communities as well as producing three to seven inches of rainfall.**

Southern Connecticut Highlights:

Hurricane made second landfall around 4 pm somewhere between Bridgeport and New haven as a Category 3 with an approx. pressure of 27.94 (946 mb) and a 115 mph maximum sustained wind (Landsea et al. 2013).

- Hundreds of lives were lost with many injured.

- Extensive damage to homes, trees, and crops.

- The storm tide at New London was 10.58' MLLW which is a record tide that still remains today.

- Stamford recorded a 14.1' MLLW storm tide and Bridgeport recorded a 12.8' MLLW storm tide.

- Bridges, utilities, and railroads were wiped out.

- Catastrophic damage to fishing fleets.

- *This website provides historical information, meteorology, damage photos, video, and news clippings of this powerful hurricane. A focus will be on the locations within the National Weather Service New York, NY forecast area.*
- *The United States Weather Bureau*

I remember this storm as a five year old. The screaming, screeching, howling of the wind remains in my memory today. My Sister Cora was home sick. In mid afternoon, Raymond picked up his oldest daughter Dorothy from the elementary school when he noticed the saplings on Campus were being blown so ferociously that the tops would touch the ground. He knew something terrible was happening with the weather, which he had never witnessed before. Our family huddled in the living room. Raymond, Nellie and the two older children spent the duration of the storm sopping up the rain water that was blowing horizontally in around the window sash and flooding the lovely maple floors. The three younger children were situated by the French doors leading to the greenhouse. Baby Elizabeth, eight months old, was in her portable crib. Her Brother Charles age 3, was entertaining her with his singing "Twinkle, Twinkle Little Star." I remember doing nothing but watching and listening and being frightened out of my wits. After dark there was a loud pounding on our front door. The wind was still howling and the rain continued. I learned later that a huge Maple tree that had stood in front of our home likely since the era of George Washington, had fallen across the road. The trunk of that tree was likely 4 feet in diameter and was so wide we hide behind it in the game of hide and seek. The man at the door wanted permission to drive on to the lawn around the fallen tree. There was evidence of the ruts his car made in the lawn for years. The storm raged on it seemed for hours. At some point I fell asleep, but have no recollection of going to bed.

The next morning we as a family, we exited the house in a group. A new, wonderful, and different aroma filled the air. It was the aroma of crushed leaves. I have been in several other hurricanes since that of 1938, yet never smelled that lovely aroma again. Our home was sturdily built and sustained little damage. Shingles had blown

off from the roof. The yard had many fallen trees and was littered with vegetative debris. Very few of the panes of glass in the green house roof had broken. The Highway Department cleared with much effort, the huge tree blocking the road which was the main road to the University. That was before the days of chain saws. Manual labor with saws, wedges and axes cleared away the trees. Raymond hired students at the University to cut the logs into fireplace size. We had enough wood for our fireplaces and for two rental properties, for wood burning fireplaces, to last well into the 1950's.

We had no power for three weeks after this devastating hurricane of 1938. Raymond used his gas powered lawn mower for other means than the lawn. He fastened it to the water pump in our cellar, to continue to provide well water for our family and neighbors. The University had power from an auxiliary source and Raymond was teaching again in three days. Mrs. Wilson, Mother's helper arrived with her old fashioned non electric irons that had to be heated on the gas stove. She continued to supply Raymond with long sleeved white shirts to wear to teach in, along with the usual attire of a suit and tie. The University did not loose their power and classes continued.

We and the neighbor children had great fun climbing on the trunks of downed trees. If a tree landed in someone else's yard it became their tree for climbing. A few squabbles erupted. Quite rapidly the mess left by the storm was cleaned up. Snow was on the way in a couple of months, and life went on. Mother as a rural inhabitant, kept a large supply of food on hand, such as the 50 pound bag off flour stowed in a custom made drawer.

The unnamed 1938 Hurricane is still frequently mentioned by the U.S. Weather service as one of the worst hurricanes ever to hit the United States. It was one of those events in ones life that will never be forgotten.

Raymond and a colleague, Professor Albert E. Moss studied the affect of the salt spray from the hurricane.

Raymond wrote:

**Biology Pamphlets - Volume 391 - Page 59 - Google Books Resul**
*Biology Library*
*Salt ASPRAY SDAMAGE FROM RECENT NEW ENGLAND HURRICANE*
*RAYMOND H. WALLACE AND ALBERT E. MOSSM University of Connecticut*
*Storrs, Connecticut*
*1938*

New England. Salem Press Pub.Co.1991

Those of us living in New England were given an excellent opportunity. Last year to observe something which we hope we will not see again. I shall give you a survey

of the salt spray damage as we have found it in New England following this hurricane.

This work was done in conjunction with Professor Moss ,of Connecticut University, and extended over a period from three or four days after the hurricane until just two or three days ago. In other words it represents approximately the story of the salt damage as seem at the end of one year.

Now, during the storm, if any of you had been present in our general section of the country you would have noticed a taste of salt in the air, and this occurred even as far as forty mikes from the ocean. It was as though your were a taking a shower of salt water. Then, maybe, it would cease to be salty, and later become salty again varying with the gusts of wind. Even as late as two weeks after the storm, we were able to find lots of salt on windowpanes and other objects exposed to the storm, as I say, as much as forty or forty-five miles from the ocean. I thought that would be interesting to you, because it seem peculiar, that salt water would be picked up and carried such distances. I looked up the old literature of the preceding New England Hurricane, the one of September, 1815. Here is a interesting quotation from that:

"The wind carried the salt water from the ocean for more than forty miles into the country, destroying the foliage of the trees, crisping and curling t he leaves of plants, and giving to all vegetation which it came in contact the appearance of having suffered from a severe frost. Some people have thought that so much of this substance could…….(# 1 below will open if you Google it, but it is difficult to read as a pdf does not copy well)

For more technical reading see: Moss, A.E. When it rained salt water. American forests August, 1938.
Wells, B.W. amd I.V. Schunk. Salt spray, an important factor in costal ecology. Bell Torr,Bee Club 65:485-492 .1938

2. Perkey, Sidney: The gale of September 23,1815. Historic storms of

Albert E. Moss Sanctuary
Mansfield, CT
The 135-acre Albert E. Moss Sanctuary is a natural area forest settings and around a pond. It is named in honor of Professor Moss, the inspiring educator in UConn's Forestry Department from 1914-1942. He developed the first curriculum in forest management at UConn in (1924) and in wildlife management (1932)

http://www.mansfieldct.gov/filestorage/1904/5357/moss_sanctuary.pdf

# THE CABIN

From the 1938 hurricane came more ideas for Raymond. In the next few years, he utilized logs felled by the storm from the surrounding area, for the building of a log cabin. It was out of sight in the woods behind our house. Selah Palmer again was the man he hired for this. This was a labor intensive task, from the collection of the trees from the site where they had fallen, to the removal of the branches and the stripping off of the bark on trunk. They were moved to the construction site on Stumpy Palmer's renovated old truck-vehicle. The exterior of the *house* was of logs. The logs met at the outside corners of the structure in a crisscross pattern. The interior walls were the other side of the logs and had the looks of fine wooden furniture. The house consisted of a living room, a kitchen, a solarium built on the back, a loft, and one bathroom. It was an open beam concept but for the end of the house which had a loft with a balcony and a bedroom, reached by way of a curving staircase. The calking between the logs was of tight fitting newspapers, covered with a thick layer, of tar, which provided good insulation from the cold Connecticut temperatures in the winter. The natural wooden logs with the black insulation, made for a beautiful sight in the interior of the house. Nellie was the gopher who drove to near by towns frequently to obtain various supplies that were needed for the project .

The cabin was located in a secluded spot, and we referred to it as the *cabin*. In reality it was a house. A drive way from the main road was added along the property line. When first built, the entrance was an extension of the drive way leading to the Wallace home. The very long unpaved driveway was the perfect place for the children to play *cars* riding our bicycles. I learned to drive an automobile there in later years.

**Floor Heat**

Raymond designed the first floor heated structure in New England for the cabin. It was a wonderful idea not to have radiators. Pipes of copper were placed in a grid pattern over the ground and cement poured over it all. Warm water to heat the building was pumped through this grid when connected to an oil burning furnace. The floor felt very pleasant on bare feet. This worked for many years successfully. Unfortunately the joints were of iron and they rusted out years later. Then base board heaters were installed to heat the building. The cabin/house was rented to a succession of University Professors, most of whom loved the cabin and became family friends. Radiant heat is now a preferred method of heating a home and is widely accepted. We met through ASHRAE, a Professor, Barne Olsen, Director of the Technical University of Denmark who worked for a company utilizing Radiant heat.

He was impressed with the thirteen page descriptive paper Jim provided for him, written by Dr. Raymond Harold Wallace (March 1941), which is included in the appendix of this biography. The paper tells all about the formation of radiant heat.
Albany NY Knickerbocker News 1940 - 1264.
Dr. Wallace had clients who reading about his project at Storrs, wished to have floor heat (Radiant Heat) in the homes they were building. Raymond became the designer for the floor heat installation.

# SUPER SONIC GENETATOR 1946

Raymond always had interesting topics or scientific projects on his mind. They were always discussed with his wife Nellie, a fellow Botanist. The Wallace family always had sit down meals together around the oak saw buck table Raymond had designed and built. The exception to that was Sunday night when we had pop corn popped from huge sacks of whole white ears of corn was our dinner. This was after having a Sunday Noon large dinner. We had to first remove the kernels from the cobs which Raymond had ordered from the Midwest. In the strawberry season we had strawberry shortcake for a meal as a special treat. Wallace meals were times of discussions of what was going on in Raymond's science projects. It was interesting to listen to the discussion between our parents. Another topic was what percentage of his time the University was allowing him for scientific pursuits that semester. It never was enough time. He would have liked his time to be completely devoted to his scientific endeavors. The children listened intently and occasionally would be included in the conversations. He was a reader of the magazine, "Science," a weekly publication and undoubtedly gleaned ideas from reading this magazine.

Circa 1946, Dr. Raymond Harold Wallace started a new scientific project with supersonic sound waves. These sound waves would be created with a special generator on loan from Samuel I. Ward, President of the Crystal Research Laboratories of Hartford, Connecticut. Mr. Ward was interested in this project and visited at the Wallace home.

Raymond was interested in was the use of supersonics and decided to experiment on the affect of high vibrations on living material. He used Sunflower seeds to expose to the high vibrations. This was accomplished **using the borrowed generator in his laboratory adjacent to his office. The Sunflower seeds were held between his thumb and forefinger in an oil solution which the supersonic sound waves passed through. Next the seeds were planted at the Lee University Experimental Farm a few miles form the University. One afternoon I became the logger in his little black book, as Sunflower seedlings that had germinated. Due to illness, Nellie had been unable to accompany Raymond, and I stood in for her. His findings were amazing. There were shriveled plants**

**and ALBINOS among the rows of seedlings. He read the fantastic results to me of what he saw among the various**

**The albinos plants became the nucleus for further experiments which continue to the current time. His research is cited in the Scientific Papers for today's Ultra Sound, used so extensively in medicine today. Raymond frequently had his students at our home observing the plants in our green house. The albinos had to be grafted onto green healthy sunflower plants. The students were successful in hands-on-learning the technique of grafting albinos on to healthy green plants. Many, many generations of these Sunflower albino plants are still being used for Thesis subjects by graduate students working for Master's degrees. It is amazing that this is now 67 years later.**

**Generally speaking, Ultra sound visualizes the soft tissue of abdominal organs, while X-rays visualize hard tissue such as bone and air filled cavities such as sinuses and intestines. Ultra Sound is wonderful tool.**

***"The Induction of Cytogenetic Variations by***
*Science. 1948 May 28;107(2787):577–*

***R. H. WALLACE, R. J. BUSHNELL, and***
***EARL H. Newcomer***
***University of Connecticut, Storrs***
***1/i1J1/2~I~1/ – Pumping rate (o)***
***– Seowoter flow (J)***
***–Time***
***– Experimental fluid (Il')***
***FIG. 2. Sample of record obtained by apparatus described.***
***Letters In parenthesis are reference letters***
***used in text.***
***particular case the constant level chamber (N), as developed***
***by Galtsoff (1), Nelson, Loosanoff, and others,***
***was used.***
***In this respect our principal deviation from their developments***
***is the method of measuring the water pumped***
***by the oyster. This, in our case, is simply a receiving***
***chamber (0) provided with an automatic siphon like that***
***described for the metering jar above. The receiving***
***chamber is also equipped with a hydrostatic tube and***
***recording tambour, as above.***
***The principal criticism of this apparatus would be that***
***the fluids flowing in while the siphons are emptying the***
***respective vessels would not enter into the final aggregates***
***recorded. This, however, is taken care of by calibrations***
***derived from measurements of actual flow from the de–***
***SCIENCE, May 28, 1948, Vol. 107***

*Root tips of Allium and Narcissus, shoot tips of Helianthus, and young adults of Drosophila melanogaster were treated in an intense ultrasonic field generated by a piezoelectric instrument with an output of approximately 150 watts acoustic (by calorimetric determination) in the zone where the material was exposed. The vibration frequency used was 400,000/see. Exposures were made in several types of specially constructed chambers. The technic of exposure, although not yet completely standardized, has yielded sufficiently promising results to warrant a preliminary report.*

*Helianthus plants now growing in the greenhouse after having their apical meristems treated in the seedling stage show definite phenotypic appearances suggestive of genetic changes which are corroborated by cytologic examination of treated root tip material. Some show a hypertrophy and a thickened, rugose condition of the leaves reminiscent of the results of colchicine treatment. Chromosome examinations of root tip smears and sections show frequent breakage of whole chromosomes and individual chromatids. Late prophase, metaphase, and anaphase chromosomes show an almost complete uncoiling with the chromatids lying parallel, with numerous breaks, attenuations, fusion of parts, and other general evidences of physical disruption. Interphase nuclei often appear as though lysed and are sometimes extended the length of the cell in a spiral form. The nuclear membrane of such deformed nuclei in some cells is destroyed; in others it appears to be intact. In some cells the interphase nuclei, nucleoli, and the cytoplasm were completely segmented into two to four integral parts. Spindle figures of dividing nuclei in affected areas seem to be totally destroyed.*

*Despite the observed general disruption of the cell system, recovery as measured by resumption of growth seems to be general in all but those tissues which showed general collapse by the longer exposures. In collapsed tissues, no evidences of discrete or dispersed nuclei could be found by staining.*

*Young adult flies, etherized just prior to treatment, show effects ranging from none through phenocopy in-*
*577*
*duction, mutations of both lethal and visible types, sterility, and death, depending upon the time and technics of exposure. More tests were made with the CLB method, whereby an analysis was made of effects on the X chromosome in the sperm of the treated males. The effects observed in this test include lethal mutations, visible mutations affecting the wings, and inversions, as determined by cross-over tests. The frequent finding of unilateral wing mutations in the F,,s suggest that most CLB or other tests should be carried through the F. generation. Treated females carrying recessive genes show increased rates of primary nondisjunction of the sex chromosomes.*

***More detailed accounts of these investigations will be published elsewhere at a later time. The authors are indebted to S. I. Ward, president of the Crystal Research Laboratories of Hartford, Connecticut, for the loan of the ultrasonic equipment used in this research."***

# RETIREMENT

The only notice of Dr. Wallace's retirement from the University of Connecticut was a tiny notation in the "Plant Science Bulletina."

***PLANT SCIENCE BULLETIN****A Publication of the Botanical Society of America, Inc.*
**VOLUME 4, NUMBER 5, NOVEMBER, 1958** Donald F. Wetherell to the Botany Dept., University of Connecticut (replacing Raymond H. Wallace who retired after 30 years);

Raymond and Nellie retired to Jerome, Arizona in 1958 following Raymond's 30 years at the University of Connecticut. Raymond and the administrative staff at the University never saw eye to eye. Raymond was an inventor of scientific instruments and but never received any recognition of this from the University. His research in the late forties using a borrowed Crystal from a company in Hartford, is cited in articles about the early use of Ultra Sound. R. J. Bushnell and Earl Newcomer co authored the scientific paper with RH Wallace.

Henry A. Wallace visited the Wallace home. He was the sitting Secretary of Agriculture in Washington, DC, came to view Raymond's innovative way of growing strawberries. The administration had nothing to do with this. Henry Wallace ran for the presidency in 1948. He was thought by some to have communist leanings. I was in grade school at the time and found it embarrassing to have the candidate have the same Sir name as my family. Raymond thought other wise.

When the elderly Granddaughter Dr. Carl Linnaeus, of Sweden, came to the University of Connecticut to give a lecture, she stayed at the Wallace home rather than at the home of the President of the University.

> Carl Linnaeus 1707-1778 was a medical doctor, zoologist and botanist. He called his system of biological classification of plants and animals, Taxonomy. This system for naming, ranking, and classifying organisms is still in wide use today as follows: Kingdom, Phylum, Class, Order, Family, Genus, Species. This is basic to every student in biology.

Together Raymond and Nellie decided to move to Arizona. Raymond had spent summers in Arizona on botanical studies, connected with his undergraduate work. He liked the area, the dry climate and vegetation and wanted to return. They subscribed to the Arizona newspaper in Cottonwood area where they planned to move. They thought the climate would be good for Nellie's asthma. Interestingly Nellie found her asthma to be worse in this new climate since there was pollen year round, rather that only in the warmer months of summer, spring and fall. They did not anticipate the weather fronts that came into Arizona from the Gulf of Mexico. Raymond continued to receive the, "New York Times," by the United States Postal Service. It was always days late, but to him that was better than what the local press had to offer.

They drove to Arizona with the back of their Dodge car packed full like a jig saw puzzle with their favored belongings, including some antique side chairs., which Raymond disassembled. Jerome, Arizona, was their destination. Jerome was an old copper mining town, which was now a ghost town nestled on the flanks of Mingus Mountain. The Mine had shut down years before. They purchased a home of the Lower Hog Back on the main road to Cottonwood. The view from their home was spectacular. It was a 100 foot drop off the back with a vista of hundreds miles. They hired help to build a walkway around the house with a three foot high heavy wire fence. That kept our son two year old son relatively safe. The house was a duplex, but the bottom level they never used. A car port was built off from the street. They had some interesting tourists, *look-e-loos* who, wondered if they were ghosts. For a ghost town there was quite a bit of traffic.

During the 12 years they lived in Jerome, they explored the area with its Indian history. They visited Raymond's old haunts where he had been as a graduate student. We were taken to Tuzigoot, a cliff dwelling, which was unbelievably well preserved. It dated to the 12$^{th}$ Century The Sinagua Indians. There are two and three story parts of the Pueblo. The Sinagua Indians left around 1244, presumably because of drought.

On a visit to Raymond in Nellie in 1961, we visited the Grand Canyon. Raymond gave us two hour lecture on the geological history of the Grand Canyon. It was impressive. We also saw the Glen Canyon dam under construction on another visit.

That was an interesting site with many workers making it appear to be a human bee hive. It too was very impressive. Oak Creek Canyon was a scenic artist's colony.

Montzuma Castle, a cliff dwelling, was occupied between 1100 to 1425 AD, and is another spectacular ruin. We walked the trails at Wupatki National Monument and were shown where the Giant Saguaro Cacti grow. We visited my parents several times in Jerome. We were given a huge education on the area and on several monuments. We are appreciative of our time with Raymond and Nellie and will never forget.

Raymond and Nellie visited us just once in San Diego for a short time. I was able to show them the Reserve where the rare Torrey Pines grow. The trees were named by two Graduate students for Dr. John Torrey, of New York. A later source claims the trees were named for him through a Fellow Botanist Dr. Perry. Torrey was one of the leading botanists of his time. John Torrey is an ancestor of my Nellie Thompson Wallace, which is fitting since she was also a Botanist. Also, the other Botanist on the staff at the University of Connecticut, was a G. Stafford Torrey. He played the Carillon located in the tower of the Storrs Congregational Church following my wedding in 1955. The bells rang out all over the University campus in a fitting gesture to a marriage that still endures nearly 60 years later.

It was getting more difficult for Raymond and Nellie to travel. Nellie was in Pasadena in the spring of 1965 to receive radiation therapy following a Mastectomy. She developed pneumonia following the flu, and was hospitalized. We visited her in the hospital, and word came early the next morning that she had died. It was as if my word had gone flip flop. She died following a broken hip while doctors were attempting to set the fracture. She was disorientated from a low oxygen level secondary to the pneumonia and fell while trying to get out of bed. She was only 65. I still grieve for her. There was no physical affection in our family. Hugs never happened. I remember caressing her left arm as we parted. She admired the off-white elegant mohair suit I was wearing for the first time after tailoring it. The next morning, the new of her death was received by telephone. I was 32 years old. Mother was gone way too soon. Raymond moved back to his home in Jerome following her death. Next he went back to Connecticut and lived for a very short time with his daughter Dorothy. He was a lost soul. He moved to an apartment in the Ralph Wetzel house, in Ashford, Connecticut, had a heart attack and died six months after loosing his Dear Nellie. He truly died of a broken heart. Dr. Ralph Wetzel, a Zoology Professor and his wife were neighbors and friends at the University of Connecticut.

My Father, the late Dr. Raymond Harold Wallace's many achievements in Science are phenomenal, yet he was never honored by the Administration of University of Connecticut. He was still an Associate Professor when he retired. He is now part of the ages, but his scientific research lives on in the albino sunflowers he created with supersonics, and continues to be studied today. As recently as 2005 a thesis in Horticulture was granted to Crystal Lea Smith by the Graduate Faculty of Texas Tech

University as partial work towards a Master's degree. This is nearly 70 years past the May 28, 1948 article published on "The Induction Of Cytogenetic Variations by Ultrasonic waves," by my Father, Raymond Harold Wallace et al. in, "Science", magazine. The legacy in science, of Dr. Raymond Harold Wallace's lives on. Wallace, R.H.and H.M. Habermann. 1958. Absence of seed dormancy in a white mutant strain of Helianthus annuus;L. Plant physiology: 252-254.
There are citations in the literature as recently as 2005, for the research of Raymond Harold Wallace in 1946.

Two Grandchildren of Dr. Raymond Harold Wallace are Carl Judson Bushnell and Beverly Ann Bushnell Swingle. They knew their Grandfather for just a very short time as very young children. My youngest Daughter, G. Roxanne Bushnell , was born after the death of Raymond and Nellie Wallace. I was only 32 when my Father Raymond H. Wallace, died, just six months after the death of my Mother, Nellie Thompson Wallace. I wish I could have known both of them for many more years. Dr. Raymond Harold Wallace was sometimes a mean individual to his children, but I prefer to remember him for his intellect and his life long interest and achievements in Science.

FINI

*Mary Wallace Bushnell*
March 10. 2015

I wish to thank my dear husband James Judson Bushnell for his technical support
in making this Biography.

APPENDIX

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National Research Council page 85

Fellowship 1927 Columbia University awarded Raymond H Wallace

National Research Fellow Columbia University 1927-29

PhD THESIS

The Production of Intumescences in Transparent apple by Ethylene Gas as Affected by External and Internal Conditions

Raymond Harold Wallace
***Bulletin of the Torrey Botanical Club***
Vol. 54, No. 6 (Jun., 1927), pp. 499-542
Published by: Torrey Botanical Society
Stable URL: http://www.jstor.org/stable/2480502

Raymond Harold Wallace received his Doctorate in Botany in 1927 from Columbia University.

| | |
|---|---|
| **Author:** | Raymond Harold Wallace |
| **Publisher:** | New York 1927 |
| **Dissertation:** | **Rating:** |
| **Series:** | Contribution from the Department of Botany Columbia University. |
| **Edition/Format:** | Thesis/dissertation : Thesis/dissertation : EnglishView all editions and formats |
| **Publication:** | Bulletin of the Torrey Botanical Club ; 54 |
| **Database:** | WorldCat |

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    - and EARL H. NEWCOMER

*Science 28 May 1948: 577-578. [DOI:10.1126/science.107.2787.577]*

o 


Extract

**OF ULTRASOUND**

***The Induction of Cytogenetic Variations by***

***R. H. WALLACE, R. J. BUSHNELL, and***
***EARL H. Newcomer***
***University of Connecticut, Storrs***

***1/i1J1/2~I~1/ - Pumping rate (o)***
***-Time***
***- Seowoter flow (J)***
***- Experimental fluid (Il')***
***FIG. 2. Sample of record obtained by apparatus described.***
***Letters In parenthesis are reference letters***
***used in text.***
***particular case the constant level chamber (N), as developed***
***by Galtsoff (1), Nelson, Loosanoff, and others,***
***was used.***
***In this respect our principal deviation from their developments***
***is the method of measuring the water pumped***
***by the oyster. This, in our case, is simply a receiving***
***chamber (0) provided with an automatic siphon like that***
***described for the metering jar above. The receiving***
***chamber is also equipped with a hydrostatic tube and***
***recording tambour, as above.***
***The principal criticism of this apparatus would be that***
***the fluids flowing in while the siphons are emptying the***
***respective vessels would not enter into the final aggregates***
***recorded. This, however, is taken care of by calibrations***
***derived from measurements of actual flow from the de-***
***SCIENCE, May 28, 1948, Vol. 107***
***Root tips of Allium and Narcissus, shoot tips of Helianthus,***
***and young adults of Drosophila melanogaster were***
***treated in an intense ultrasonic field generated by a piezoelectric***
***instrument with an output of approximately 150***
***watts acoustic (by calorimetric determination) in the***
***zone where the material was exposed. The vibration frequency***
***used was 400,000/see. Exposures were made in***
***several types of specially constructed chambers. The***
***technic of exposure, although not yet completely standardized,***
***has yielded sufficiently promising results to warrant***
***a preliminary report.***
***Helianthus plants now growing in the greenhouse after***
***having their apical meristems treated in the seedling***
***stage show definite phenotypic appearances suggestive of***
***genetic changes which are corroborated by cytologic examination***
***of treated root tip material. Some show a***
***hypertrophy and a thickened, rugose condition of the***
***leaves reminiscent of the results of colchicine treatment.***
***Chromosome examinations of root tip smears and sections***
***show frequent breakage of whole chromosomes and***
***individual chromatids. Late prophase, metaphase, and***
***anaphase chromosomes show an almost complete uncoiling***
***with the chromatids lying parallel, with numerous breaks,***

***attenuations, fusion of parts, and other general evidences of physical disruption. Interphase nuclei often appear as though lysed and are sometimes extended the length of the cell in a spiral form. The nuclear membrane of such deformed nuclei in some cells is destroyed; in others it appears to be intact. In some cells the interphase nuclei, nucleoli, and the cytoplasm were completely segmented into two to four integral parts. Spindle figures of dividing nuclei in affected areas seem to be totally destroyed.***

***Despite the observed general disruption of the cell system, recovery as measured by resumption of growth seems to be general in all but those tissues which showed general collapse by the longer exposures. In collapsed tissues, no evidences of discrete or dispersed nuclei could be found by staining.***

***Young adult flies, etherized just prior to treatment, show effects ranging from none through phenocopy in-***
***577***
***duction, mutations of both lethal and visible types, sterility, and death, depending upon the time and technics of exposure. More tests were made with the CLB method, whereby an analysis was made of effects on the X chromosome in the sperm of the treated males. The effects observed in this test include lethal mutations, visible mutations affecting the wings, and inversions, as determined by cross-over tests. The frequent finding of unilateral wing mutations in the F,,s suggest that most CLB or other tests should be carried through the F. generation. Treated females carrying recessive genes show increased rates of primary nondisjunction of the sex chromosomes. More detailed accounts of these investigations will be published elsewhere at a later time. The authors are indebted to S. I. Ward, president of the Crystal Research Laboratories of Hartford, Connecticut, for the loan of the ultrasonic equipment used in this research.***

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AMERICAN MEN OF SCIENCE 1938
Professor Raymond Harold Wallace, Connecticut State College, Storrs, Connecticut. Plant physiology , cytology, Cowgill Missouri April 17, 1899 AB Iowa 1924, PhD Columbia 1927, Nat research fellow Columbia,27-29. Assistant Professor Botany , Connecticut Agricultural College 29-35; Associate Professor Connecticut State College, 35-37; AA; Society of Plant Physiology; Botany Society; Torrey Botany Club; Effect of certain vapors and gasses on plants; Effects of some animal anesthetics on the sensitive plant:
Seasonal activity of photosynthesis in evergreen and stem
Chlorenchymas; the measurement and recording of light; use of film for insulation; leaf temperatures.

No further ,"American Men Science,"quotes appear since the 1938 edition. In subsequent editions since the Scientist would need to pay to have his site updated. The book is now published under the name of the of the, "American Men and Women of Science."
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investigations / Michael J. Comer, David *H*. Price, Patrick M. Ardis. Published: London ..... *Wilfred Grenfell* was a medical missionary to Newfoundland and Labrador from 1892-1940. He was an ... *Wallace*, *Raymond H*. Walwyn, Humphrey ...

**Wallace, Raymond H. - SNAC**
*socialarchive.iath.virginia.edu/ark:/99166/w61r78vw*
*Wallace*, *Raymond H*. Alternative names ... *Grenfell*, *Wilfred* Thomason, 1865-1940. *Wilfred* Thomason *Grenfell* papers, 1855-1986 (inclusive), 1892-1940 (bulk).

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Since letters to Anne E.M. *Grenfell* were sometimes answered by W.T. *Grenfell* and vice versa, her .... 10, 369-70, *Wallace*, *Raymond H*.(*), 1938 Feb-1940.

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|---|---|---|---|
| 10 | 369-70 | Wallace, Raymond H.(*) | 1938 Feb-1940 |

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1. **The Use of Transparent Cellulose Film for Insulation**

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Mature seeds of *Helianthus annuus* L. exhibit dormancy that is eliminated during ... correlated by Wallace and *Haberman* (16) with the absence ofany detectable .

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As a Plant Physiologist, in 1937, Raymond wondered it there was a difference in temperature between the top and bottom surfaces of a living plant leaf. Over a three year period, he developed the first ever potentiometer. in history to measure this. A Potentiometer is an extremely complicated instrument, the fundamentals of his development are still in use today.

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A SIMPLE AND EFFECTIVE HUMIDITY CONTROL

R.H. Wallace and R.J. Bushnell

It is frequently necessary in physiological work to control the humidity
Of an environment I which studies are being made. May methods of control have been devised and used. In most cases of these controls are of limited
Application. We recently devised an effective control which seems to have broad application and employs simple ad relatively in expensive materials.

The device consists essentially if a radio tube whose grid is activated by
the opening and closing of the contacts of a humidistat. This tube runs a motor which turns as eccentric. The eccentric compresses and releases the rubber bulb of a Bunsen water pump which delivers water from a reservoir
into a glass tube leading it to the top of a evaporator. The fan I the
Evaporator runs continuously bur the water to maintain humidity is added only
When the humidistat calls for it. The mechanism functions very consistently
And any humidity can be maintained within in one percent.

*American Society of Plant Biologists*
*Plant Physiology July 1945; 20(3) 443- 447*

**Ames Daily Tribune from Ames, Iowa · Page 7**

Raymond Harold Wallace was born in 1899A SIMPLE AND EFFECTIVE HUMIDITY CONTROL

R.H. Wallace and R.J Bushnell

When sulphur mounted on specially made, lightweight fr iary ames. developed by the Yankee ingenuity of Prof. R. H.Wallace
*CELLUOSE ACETATE*
of . ILLITE URBANA, CELLULOSE By Science Service STORRS, Conn.—Cellulose film » wrappers, that now protect packs j of cigarettes and nickel candy j bars, will presently be fortifying j whole houses against winter cold, ' if Connecticut State College here works out as well as it seems Prof. Wallace states. He is a plant physiologist himself, and has a The method is especially valuable for greenhouses, treated Sodium vapor lamps give off a monochromatic bright light in which objects are more easily distinguished than under conventional illumination the method small i conservatory built as a lean to against one wing of his house, j Cellulose covering as an auxilj to the glass saves him a substantial sum in reduced heating costs, he reports, etc.

Dr. Wallace was interested in the use of a plastic material called cellulose acetate. It let all rays of the sun including the UVA's, UVB's, and UBC rays. UVA rays cause warmth, and sun damage in the form of sun burn and can oeas to Skin Cancer. It takes just 10 seconds of exposure for there to be skin damage at the cellular level from the sun's rays. UVB rays pass through glass and cause warmth and skin damage but no sun burn. UVC rays do not present a problem to humans. Raymond used the cellulose acetate in windows in our home. In the 60's it was used in green houses

***Ames Daily Tribune from Ames, Iowa · Page 7***

1938
"ILLITE URBANA, CELLULOSE By Science Service STORRS, Conn.—Cellulose film » wrappers, that now protect packs j of cigarettes and nickel candy j bars, will presently be fortifying j whole houses against winter cold, ' if the method developed by the Yankee ingenuity of Prof. R. H. Wallace of Connecticut State College here works out as well as it seems, to promise. Not that the whole house will be wrapped in the transparent sheets. That isn't necessary. Prof. Wallace has found, can be effectually insulated against the cold with cellulose film. But windows, outside cellar doors, and other warmth-wasting openings.
The film is useful even where storm sash is already used. One very effective trick is to put sheets of it on both sides of the sash, sealing the whole frame into a sort of envelope by means of a hot flatiron run along the overlapping edges. Common window screens can be treated in the same way. Or the sheeting can be mounted on specially made, lightweight frames. The method is especially valuable for greenhouses, Prof. Wallace states. He is a plant physiologist himself, and has a small conservatory built as a lean-to against one wing of his house, Cellulose covering as an auxiliary to the glass saves him a substantial sum in reduced heating costs, he reports."

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*JOURNAL*. OF BOTANY. [Vol. 36, ... *WALLACE*, R. H., R. J. BUSHNELL, AND E. H. NEWCOMER. 1948. The induction of ... *Supersonics*. The science of inaudi-.

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his house, Cellulose covering as an auxiliary to the glass saves him a substantial sum in reduced heating costs, he reports."

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SIR WILFRED THOMASON GRENFELL

Sir Wilfred Thomason Grenfell was the Medical Director on the International Grenfell Association. From 1865 to 1940 he was a medical missionary to Newfoundland and Labrador.

Sir Wilfred Grenfell of Labrador as interested in Raymond's use of Cellulose Acetate and contacted him. He wondered if Tubercular Eskimo children would benefit from basking in the sun in Solaria using cellulose acetate rather than glass. He invited Raymond to travel to Labrador to assist in the building of Solaria using Cellulose Aceate rather than glass in a solarium. Sir Wilfred visited Raymond at our home twice that I was aware of. He came in a chauffeured limousine. He had retired to Vermont after his service was completed.

*The authors are indebted to Mr. S.I. Ward, President of the Crystal Research Laboratory of Hartford, Connecticut for the loan if the ultrasonic generator.*

*HABERMAN-*_____

***ABSENCE OF SEED DORMANCY IN A WHITE MUTANT STRAIN***
***OF HELIANTHUS ANNUUS L.'***
***RAYMOND H. WALLACE AND HELEN M. HABERMANN 2***
***DEPARTMENT OF BOTANY, UNIVERSITY OF CONNECTICUT, STORRS, CONNECTICUT AND***
***RESEARCH INSTITUTES (FELS FUND), UNIVERSITY OF CHICAGO, CHICAGO 37, ILLINOIS***
***The premature germination of seeds which nor- Ascherson (1) described apples***
***which contained premally***
***require a period of dormancy has been re- maturely germinating seeds and in***
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***ported in many plant species. As early as 1875 reported observing germinating***
***seeds within several***
***1 Received February 14, 1958. kinds of fleshy fruits. About three decades ago***
***sev-***
***2 Present address: Dept. of Biol. Sci., Goucher Col- eral viviparous mutants of***
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*Prof.R.H. Wallace*

conventional illumination. ILLITE URBANA, CELLULOSE By Science Service STORRS, Conn.—Cellulose film » wrappers, that now protect packs j of cigarettes and nickel candy j bars, will presently be fortifying j whole houses against winter cold, ' if the method developed by the Yankee ingenuity of Prof. R. H. Wallace of Connecticut State College here works out as well as it seems, to promise. Not that the whole house will be wrapped in the transparent sheets. That isn't necessary. But windows, outside cellar doors, and other warmth-wasting openings. Prof. Wallace has found, can be effectually insulated against the cold with cellulose film. The film is useful even where storm sash is already used. One very effective trick is to put sheets of it on both sides of the sash, sealing the whole frame into a sort of envelope by means of a hot flatiron run along the overlapping edges. Common window screens can be treated in the same way. Or the sheeting can >e mounted on specially made, ightweight frames. The method is especially valuable for greenhouses, Prof. Wai- ace states. He is a plant physi-, ologist himself, and has a small i conservatory built as a leanto against one wing of his house, j Cellulose covering as an auxiliary j to the glass saves him a substan- i tial sum in reduced heating costs, he reports. FILM IS USED BY INGENIOUS SCIENTIST AS EFFECTIVE INSULATION FOR HOUSE IRON BERLIN.—Spongy irott that It soft and malleable like lead and employable for some of the same purposes has been developed here by a physicist, Dr. Hans Vogt, after many years of effort The material has the further advantages that it is much lighter, lower j in price, and can be produced from ' native ores instead of being expensively imported from abroad. One of the common uses of lead is for packing around iron plumbing; it is hammered into.joints between the pipes. The new spongy iron is very well adapted for toil use. This "kneadable" iron is made by sintering powdered iron at a temperature of from 1200 to 1300 degrees Centigrade, in an atmosphere of hydrogen to prevent "the formation of oxides. The product is full of tiny cavities, ta which it owes its plastic properties. SULPHUR GAINESVILLE, Fla,—Sulphur, standby spring tonic of the old- time medicine chest, is good fs? what ails chickens on the outside, it appears from results of experiments conducted by Dr. M. W. Emroel of the Florida-Experiment Station here. Dr. Emmel has found that by adding five per cent, of sulphur flour to the chickens' laying mash he can rid the birds of external parasites such as lice and stick- tight Sea's. Sunshine proved to be a -strong •auxiliary for the sulphur in tfie experiments. Fowls kept on the sulphur regimen indoors were relieved of only 25 per cent of their parasites. When sulphur-fed fowls were given liberty to run outdoors, however, they were totally cleared of their infestation. As a striking demonstration of the heat-saving effects achieved by his method, Prof. Wallace 111 Illitp a nrca- ! ? aced a series of thermometers m.—Illite, a m.ca by one Qf hjs windowg thgt was like mineral, resembling ordinary mica, but occurring in sedimentary rocks, is announced as a new mineral by Drs. R. E. Grim. R. H. protected both inside and out with cellulose film. One cold winter morning he took a photograph that showed all four instruments , D j «T r, r, j, r n- ! ^""6 outside thermometer, fully ! Bray, and W. F. Bradley, of the exposed to the weathej . showe(J J Illinois Geological Survey, report- j reading of 12 degrees Fahrenheit. ! ing in The American Mineralo-1 The next thermometer, between j gist. I the outer film and the glass, read min- i the WING of Prof. R. H. Wallace's house at Storrs, Conn., showing extra protection given to conservatory glass and windows with sheets of cellulose film. sible to give protection to all windows of-30 ordinary-sized houses at a cost of about 15 cents per window.

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